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Examining the Role of Motivation in the Relationship Between Perceived Academic Stress and Coping Among Freshmen

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EXAMINING THE ROLE OF MOTIVATION IN THE RELATIONSHIP BETWEEN PERCEIVED ACADEMIC STRESS AND COPING AMONG FRESHMEN

by

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This dissertation, submitted by Ying Dong in partial fulfillment of the requirements for the Degree of Doctor of Philosophy from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

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Ying Dong
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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

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ABSTRACT

First-year college students commonly face academic stress that is negatively associated with academic achievement and persistence. It has been found that problem-focused coping (PFC) effectively decreases stress, but emotion-focused coping (EFC) exacerbates stressful situations in the long term (Carver & Scheier, 1994; Kim & Duda, 2003). Lazarus and Folkman's (1984) Transactional Model of Stress and Coping (TMSC) posits that cognitive appraisals determine the selection of stress coping. In the current study, two motivation indicators, causal attributions for academic stress and value of college education, were recognized as cognitive appraisals that were respectively placed into the TMSC to test their role in the relationship between perceived academic stress and the selection of stress coping. Three-hundred and twenty-one freshmen from a medium-sized, research-comprehensive university in the mid-western United States voluntarily participated in the study during the fall semester 2013. Results revealed that when students perceived themselves as stressed, they were more likely to engage in PFC if they attributed their academic stress to personally controllable causes. In addition, if freshmen valued their college education as enjoyable, important, and/or rated its cost value as low, they were more likely to engage in PFC. The theoretical developments of Lazarus and Folkman's (1984) TMSC, Weiner's (1985) Attribution Theory, and Eccles et al.'s (1983) Expectancy-value Theory, as well as practical implications for freshmen adaptively coping with their academic stress are discussed.

CHAPTER I

INTRODUCTION

Overview

Empirical studies have reported that first-year college students are prone to stress (Arthur, 1998; DeBread, Spielmans, & Julka, 2004; D'Zurilla & Sheedy, 1991; Elkins, Braxton, & James, 2000; Lu, 1994). Various stressors identified in the research literature include unfamiliar learning tasks, competition with other students, overloaded course assignments, and insufficient academic resources (Abouserie, 1994; Archer & Lamnin, 1985; Awino & Agolla, 2008; Kohn & Frazer, 1986). In general, college-related stress has been found to be inversely related to academic achievement and persistence among freshmen (Akgun & Ciarrochi, 2003; Perrine, 1999; Struthers, Perry, & Menec, 2000; Zhang & RiCharde, 1998). Although freshmen commonly face stress, many of them can effectively cope with their stress, and succeed in attaining a college education (Aspinwall & Taylor, 1992; Carver & Scheier, 1994, Terry, 1994). If they cannot effectively cope with their stress; however, they are at risk of low academic achievement, and dropping out of college (DeBread et al., 2004; Perrine, 1999; Zhang & RiCharde, 1998). Indeed, the attrition rates in U.S. colleges have been high among freshmen: 16% -37% (The National Center for Higher Education Management Systems, 2013).

Attrition is detrimental to institutions' economy and social well-being (Institute for Higher Education Policy, 2005). For instance, an institution with high attrition rates

must strive to plan, budget, and maintain its economic stability (Strauss & Volkwein, 2004) because as students drop out they lose tuition income (Bean, 1990). Students are also victims of attrition by losing opportunities to earn a college degree, develop their potential, and compete for jobs with high salaries (Card & Krueger, 1992; Institute for Higher Education Policy, 2005; Jaeger & page, 1996). A more significant consequence of college attrition is the intergenerational influence. For instance, children whose parents do not earn a college degree are more likely to drop out of high school or college, and live in poverty than their counterparts with parents earning a college degree (Carnevale & Desrochers, 2004).

It is worth noticing that empirical studies consistently show academic achievement is significantly, positively correlated to college students' retention (Kirby & Sharpe, 2001; McGrath & Braunstein, 1997; Robbins et al., 2004). A study by DeBerard, Spielmans, and Julka (2004) reported that the average cumulative GPAs for retained students was 3.10, but for non-retained students was 2.50. Therefore, it is important to examine how to help freshmen to effectively cope with stress to improve their academic achievement, and in turn increase retention.

Stress coping has been significantly associated with different stress outcomes (Carver & Scheier, 1994; Endler, Kantor, & Parker, 1994; Kim & Duda, 2003). Specifically, problem-focused coping (PFC) effectively reduces stress (Mattlin, Wethington, & Kessler, 1990), whereas emotion-focused coping (EFC) exacerbates stressful situations in the long term (Anshel & Kaissidis, 1997; Carver, Scheier, & Weintraub, 1989). This begs the question of why do some stressed freshmen engaged in

PFC, while others engage in EFC? Researchers have found that cognitive appraisals make the difference in the selection of stress coping (Anshel & Kaissidis, 1997; Folkman & Lazarus, 1980; Folkman, Lazarus, Dunkel-Schetter, Delongis, & Gruen, 1986; Kim & Duda, 2003).

Lazarus and Folkman (1984) posited a Transactional Model of Stress and Coping (TMSC) that described the role of cognitive appraisals in determining the selection of stress coping. However, a research gap is that this model and previous empirical studies did not specify which specific cognitive appraisals can play a role in the procedure. If no specific cognitive appraisals have been recognized, it is impossible for the prevention/intervention programs for students' stress management, institutional administrators, or students' advisors to help college freshmen engage in problem-focused coping to adaptively cope with their stress. This shortcoming has been acknowledged by Lazarus and Folkman (1984), and they recommended recognizing more accurate terms representing cognitive appraisals rather than just use the terms of primary, secondary appraisal in future studies.

Two forms of cognitive appraisals, causal attributions and subjective task value, have been found to significantly predict college students' academic motivation and achievement (Battle & Wigfield, 2003; Cortes-Suarez, 2008; Eccles et al., 1983; Gobel & Morie, 2007; Hsieh & Schallert, 2008; Perry, Stupnisky, Daniels, & Haynes, 2008; Weiner, 1985). For example, if college students attribute their academic failure to internal, unstable, and/or controllable causes (e.g., effort), they will be motivated to put more efforts to change their failure, likely leading to improved academic achievement.

Concurrently, if students value an educational task (e.g., course enrollment, test) as enjoyable, important, and useful, they are more likely to put their efforts to work with the assignment. When integrating stress theory, such as the TMSC (Lazaurs & Folkman, 1984) with motivation theories, such as Weiner's Attribution Theory (1985) and Eccles et al.'s Expectancy-value Theory (1983), it is possible that college students' causal explanations for stress, and subjective value of college education can be recognized as important cognitive appraisals that likely predict the selection of stress coping. Specifically, the two motivation indicators determine college students' motivation to cope with their stress, which in turn predict their selection of stress coping. These two motivation indicators; however, have never been examined as cognitive appraisals in Lazarus and Folkman's (1984) TMSC model.

The purpose of the current study was to examine how freshmen's achievement motivation indicators, namely causal attributions and subjective task value, play a role (mediating or moderating) in the relationship between perceived academic stress and the selection of stress coping. In addition, the relationship among stress, coping, and outcomes of stress, such as perceived academic success, expectation of success, responsibility for academic performance, and emotions was also to be examined.

Theoretical Framework

The present study was framed by three theories: (1) The Transactional Model of Stress and Coping (TMSC**;** Lazarus & Folkman, 1984**)**, (2) Attribution Theory (Weiner, 1985), and (3) Expectancy-value Theory (Eccles et al., 1983). Causal attributions and subjective task value are recognized as two specific cognitive appraisals being

respectively integrated into the TMSC to develop the tested models in which the relationship among perceived academic stress, cognitive appraisals (causal attributions, subjective task value), and selection of stress coping would be tested.

The Transactional Model of Stress and Coping

Lazarus and Folkman (1984) framed a Transactional Model of Stress and Coping (TMSC) that described the relationship among stress, cognitive appraisals (primary and secondary), coping, and stress outcomes (see Figure 1). According to the model, when people face stress they typically experience three stages. The first stage, primary appraisals, consists of the individual initially evaluating the stimulus of a situation or an event as threatening or not (Largo-Wight, Peterson, & Chen, 2005). According to Folkman et al. (1986), three types of primary appraisals possible: irrelevant where the stress has no implication for a person's well-being, benign-positive where the outcome of stress is positive to a person's well-being, and stressful where the person's well-being would be harmed by the stress. During the second stage of facing stress, secondary appraisals are completed where the individual evaluates the stress to determine what can be done to overcome or prevent harm, or to improve the possibility of benefit. During this stage, the individual evaluates what coping strategies are available, and what outcomes are likely associated with different coping strategies. During the final stage, the individual selects the strategy of problem-focused, or emotion-focused to cope with the stress.

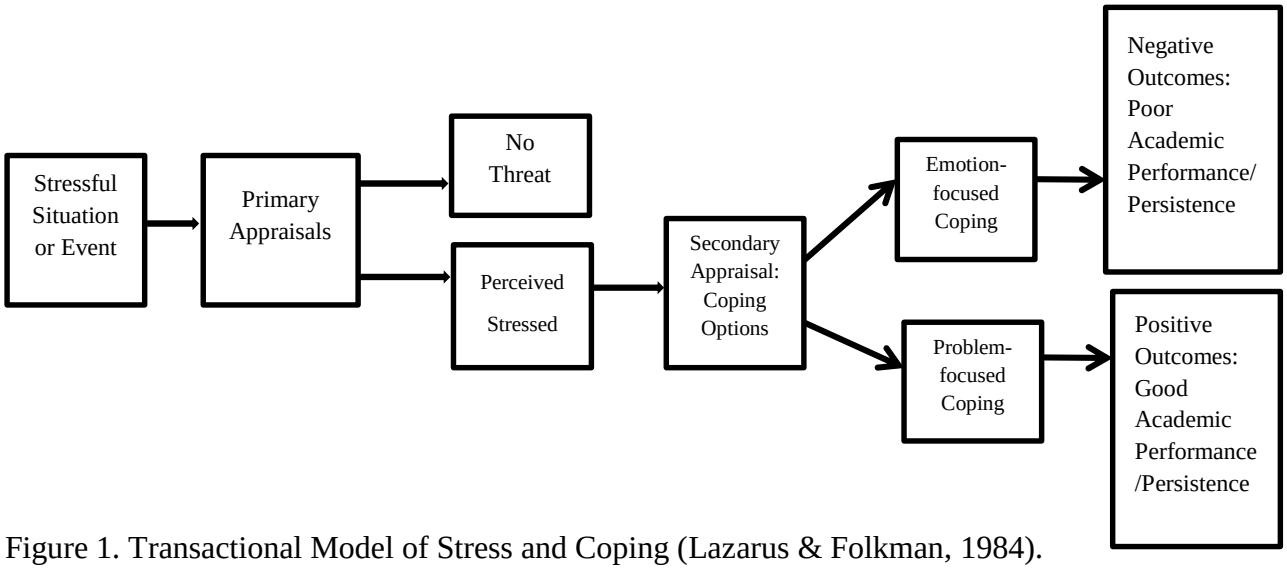

Figure 1. Transactional Model of Stress and Coping (Lazarus & Folkman, 1984).

Lazarus and Folkman (1984, p. 141) defined stress coping as "constantly changing cognitive and behavioral efforts to manage specific external, and/or internal demands that are appraised as taxing or exceeding the resources of the person". Ninety-six percent of college students reported that they typically use two types of stress coping, namely PFC and EFC, to cope with a stressful situations (Folkman & Lazarus, 1985). PFC refers to taking action to control, moderate, or remove the stressful events or situations. Because this type of coping authentically decreases or gets rid of stress, it is considered adaptive coping. EFC refers to individuals distancing themselves from the stressors, escaping, or avoiding the stressors in order to get temporary emotional release. Carver et al. (1989) as well as Folkman and Lazarus (1985) argued that EFC exacerbates stressful situations over the long term because it only moderates an individual's interpretation or perception of a stressful situation rather than actually altering the stress. Thus, EFC is considered maladaptive coping. Typically, if people think they are able to

do something for their stressful situation (i.e., have perceived control), they will more likely select PFC. Alternatively, if they think they can do nothing for their stress, they are more likely to select EFC.

Lazarus and Folkman (1984) pointed out the importance of understanding the role of cognitive appraisals in the relationship between stress and reaction. According to Lazarus and Folkman (1984, pp.22-23):

> It is evident that individuals and groups would have difference in degree of reaction when facing stressful situation because they have different interpretations and sensitivities to certain types of events…. In order to understand variations among individuals under comparable conditions, we must take into account the cognitive processes that intervene between the encounter and the reaction, and the factors that affect the nature of this mediation. If we do not consider these processes, we will be unable to understand human variation under comparable external conditions.

Lazarus and Folkman (1984) also acknowledged that "the terms of 'primary appraisal' or 'secondary appraisal' give no hint about the content of each form of appraisal" (p.31). Although they stated that it is difficult to change terms once they had been used in the literature, they suggested it is better to recognize more accurate terms to replace primary or secondary appraisals in future studies.

In summary, Lazarus and Folkman's (1984) Transactional Model of Stress and Coping clearly describes the process of coping with stress. During the process, cognitive appraisals predict the selection of stress coping that in turn determine the outcomes of

stress. However, since the terms of primary appraisal and second appraisal are less informative, Lazarus and Folkman have recommended that recognizing specific cognitive appraisals that can account for why some stressed college students select adaptive coping (problem-focused) to effectively cope with their stress whereas some deteriorate their stressful situation by using maladaptive coping (emotion-focused). The subsequent review of Weiner's (1985) Attribution Theory as well as Eccles et al.'s (1983) Expectancy-value Theory clarify why and how these two motivation indicators can be recognized as specific cognitive appraisals that likely predict the selection of stress coping.

Attribution Theory

Weiner's (1985) Attribution Theory (see Figure 2) has been a popular guide for research on college students' academic motivation and achievement. Weiner defines causal attributions as the reasons used by individuals to explain their success or failure. Weiner (1985, 2010) argued that students' causal attributions for success and failure influence their expectation of success, sense of responsibility, emotions, and beliefs of competences, which in turn have effects on their motivation and academic achievement. For example, if students attribute their failure to internal, unstable, or controllable causes such as effort, they would recognize more responsibility for their failure, believe they are able to do something to change the failure, and have a high expectation of future success. All of these beliefs would motivate them to put forth more effort to change the failure. Alternatively, if they attribute their failure to external, stable, or uncontrollable causes such as task difficulty which they cannot control, they would recognize less personal

responsibility, not believe they can do something to avoid future failure, and ultimately be less motivated to improve upon their failure.

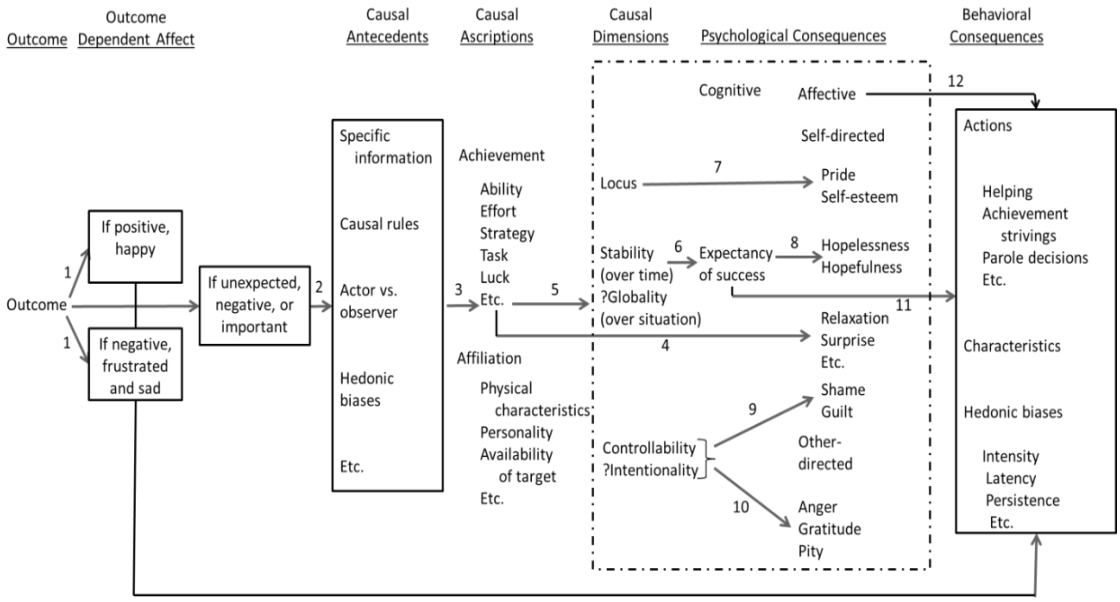

Figure 2. An Attributional Theory of Motivation and Emotion (Weiner, 1985, p. 565).

Weiner (1985, 2000) identified common causes, referred to as causal ascriptions, for success or failure, such as ability, effort, task difficulty, and luck; however, he stated that these were not inclusive, and many others were possible. Weiner additionally proposed that any causal ascription can be categorized into three causal dimensions: locus of causality (internal or external), stability (stable or variable over time), and controllability (can or cannot be controlled). For example, ability is an internal, stable, and uncontrollable cause, and effort is an internal, unstable, and controllable cause. Weiner (2010) recently suggested that future research should focus on causal dimensions (i.e., locus of causality, stability, controllability) rather than single causal ascriptions (i.e., ability or effort) because "dimensional placement depends on how it seems to me" (p.32). According to Weiner, effort is typically recognized as an unstable causal ascription, but a

highly industrious person or chronically lazy person is likely to consider it as stable. Thus, Weiner suggested the examination of connections between causal dimensions and motivation. For example, a person who rates effort as an unstable cause is more likely to be motivated to change his/her failure because he/she believes the failure will not be recurring. Alternatively, a person who rates effort as stable is less likely to be motivated to change the failure. If examining effort rather than its causal dimension, the same causal ascription could be associated with several different motivational outcomes.

Although a large number of empirical studies have employed Attribution Theory to examine college students' academic motivation and achievement (Cortes-Suarez, 2008; Hsieh & Schallert, 2008; Gobel & Morie, 2007; Perry et al., 2008), it is unclear how causal attributions affects college students' motivation for engaging in different stress coping. In fact, it is human nature to find out the causes for negative, and/or unexpected events, which commonly lead to stress; a process known as causal search (Stupnisky, Stewart, Daniels, & Perry, 2011; Weiner, 1985, 2006). For example, after college students appraise themselves as stressed through primary appraisals, they naturally think about what causes lead to their stress. If college students then attribute their stress to internal, unstable, or personally controllable causes, they are more likely to take responsibility for the stress, and believe they are able to change the stress. In other words, they would be motivated to utilize problem-focused coping. On the contrary, if students attribute their stress to external, stable, or personally uncontrollable causes, they would be less likely to recognize responsibility for the stress, have low expectations, or not believe in being able to change the stress. They would be more likely engage in

emotion-focused coping. Thus, through an integration of Weiner's Attribution Theory (1985) with Lazarus and Folkman's (1984) Transactional Model of Stress and Coping, it is inferred that causal attributions for stress, reasons used by individuals to explain their stress, can be a specific cognitive appraisal that mediates or moderates the relationship between perceived academic stress and the selection of stress coping.

Expectancy-value Theory

Eccles et al.'s (1983) developed the Expectancy-value Theory that posits people's behavior choice, performance, and persistence in a task are determined by their subjective value assigned to the task (see Figure 3). Subjective task value is comprised of four components (Wigfield & Eccles, 2000). The first component, intrinsic value, refers to "the enjoyment one gains from doing a task" (p. 72), which is usually associated with positive psychological consequences (Deci & Ryan, 1985). The second component, attainment value, is defined as "the importance of doing well on a given task" (p. 72), or success on the task will support or confirm a person's valued characteristics (Cole, Bergin, & Whittaker, 2008). For example, students perceive their college education as important if they consider a university degree fulfills their potential or brings prestige to them. Utility value, the third component, refers to how a task will be helpful or useful for a person's future plans (Wigfield & Eccles, 2000), such as the helpfulness of attaining a college degree to finding a desired job. The final component, cost value, is a negative value that refers to when engaging in one activity such as doing homework, limits a student from doing another activity such as visiting a friend (Wigfield & Eccles, 2000). The theory states that if people place high intrinsic, attainment, utility value, or low cost

value on a task, they would more likely to choose to work with, persist in, and succeed in the task.

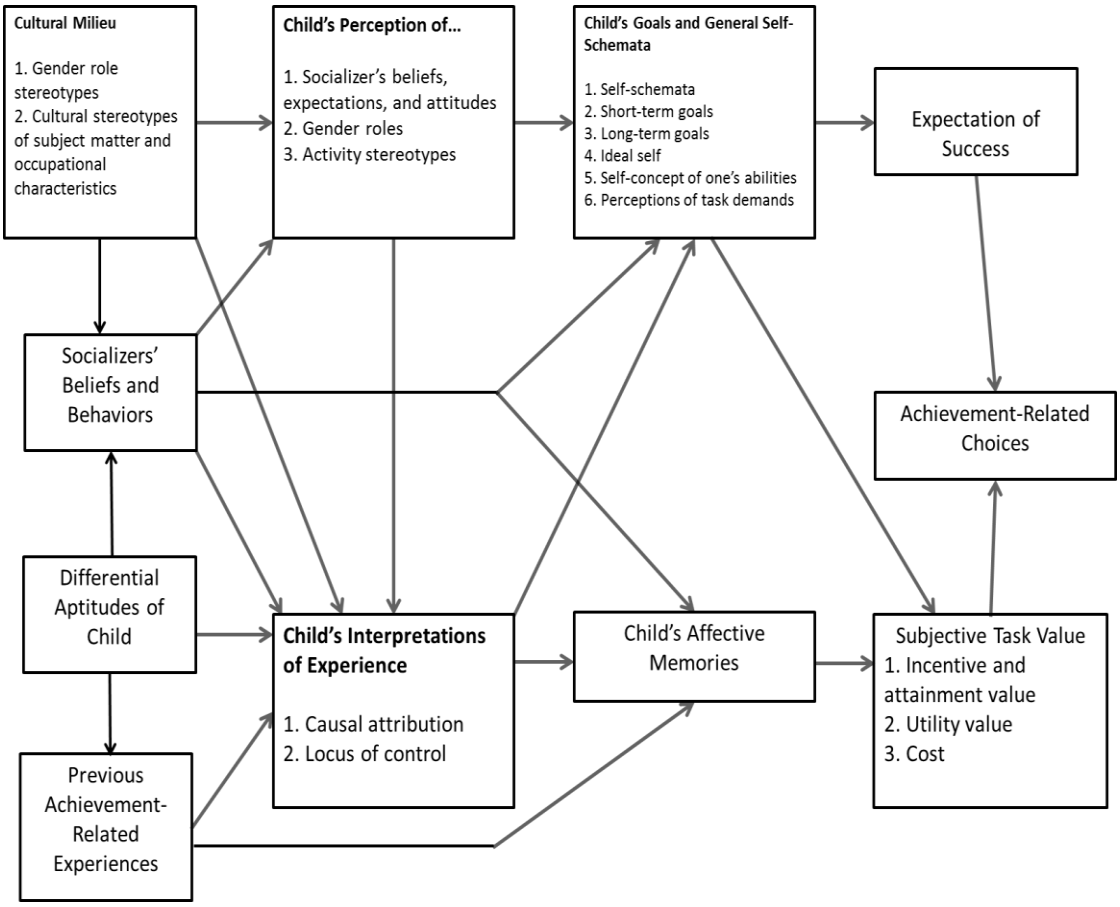

Figure 3. Expectancy-value Model of Achievement Motivation (Wigfield & Eccles, 2000, p. 69).

Expectancy-value Theory; however, has never been employed to explore how subjective task value as a specific cognitive appraisal predicts college students' motivation to cope with their stress. When integrating Expectancy-value Theory with TMSC it is inferred that subjective task value can be a type of cognitive appraisal that plays a role in the relationship between perceived academic stress and the selection of

stress coping. For instance, when perceiving themselves as stressed, freshmen would more likely engage in problem-focused coping if they place high intrinsic, attainment, utility value, and/or low cost value on their college education. Alternatively, they are more likely to engage in emotion-focused coping if they place low intrinsic, attainment, utility value, and/or high cost value on their college education.

Purpose of Study and Research Questions

Lazarus and Folkman's (1984) TMSC model describes that cognitive appraisals play a role in the relationship between perceived stress and the selection of stress coping, but the model does not specify which specific cognitive appraisals can predict college students' motivation to cope with their academic stress. Weiner's (1985) Attribution Theory indicates that college students' causal explanations for unexpected, negative academic events such as test failure have effect on their expectation of success, sense of responsibility, and emotions which in turn predict their academic motivation and achievement. Eccles' (1983) Expectance-value Theory states that the subjective value assigned to a task determine people's motivation to work with the task as well as their performance in the task. However, neither Attribution nor Expectancy-value Theory has been examined to predict college students' motivation of adaptively coping with their academic stress through selecting problems-focused coping.

The purpose of the study was to examine the relationship among freshmen's levels of perceived academic stress, causal attributions for stress, subjective value of college education, and selection of stress coping within a theoretical framework consisted of Lazarus' and Folkman's (1984) Transactional Model of Stress and Coping, Weiner's

(1985) Attribution Theory, and Eccles et al.'s (1983) Expectancy-value Theory. Said differently, the present study was used to examine if causal attributions or subjective task value serve as cognitive appraisals that mediate or moderate the relationship between perceived academic stress and the selection of stress coping.

Research Questions

The following research questions were proposed and guided the study:

1. Is freshmen perceived academic stress correlated with their perceived academic success, expectation of success, responsibility for academic performance, and emotions?

2. When freshmen perceive themselves as stressed, what type of stress coping do they typically engage in?

3. Is given stress coping correlated with certain outcomes of stress, such as perceived academic success, expectation of success, responsibility for academic performance, and emotions?

4. Do casual attributions for academic stress mediate or moderate the relationship between perceived academic stress and the selection of stress coping? Specifically, when freshmen perceive themselves as stressed, would they more likely engage in problem-focused coping if they attribute their stress to internal, unstable, or personally controllable causes? Alternatively, would they more likely engage in emotion-focused coping if they attribute their stress to external, stable, or personally uncontrollable causes?

5. Does subjective value of a college education mediate or moderate the relationship between perceived academic stress and the selection of stress coping? Specifically, when freshmen perceive themselves as stressed, would they more likely

engage in problem-focused coping if they place high intrinsic, attainment, utility value, and/or low cost value on college education? Alternatively, would they more likely engage in emotion-focused coping if they place low intrinsic, attainment, utility value, and/or high cost value on college education?

Significance

If the research questions can be addressed by the study, the findings will provide intervention and/or prevention strategies for reducing first-year college students' perceived academic stress, and bolstering their academic success. Specifically, institutional administrators, students' advisors, and class instructors should encourage college freshmen to use functional causal attributions (i.e., internal, unstable, controllable) to account for their academic stress. In addition, institutions should take steps to explicitly promote freshmen's subjective value of a college education. All efforts would be possible to motivate freshmen to engage in adaptive coping to effectively change their stressful situation or events.

Moreover, this is the first study that creatively applied achievement motivation theories, such as Weiner's (1985) Attribution Theory as well as Eccles' et al.'s (1983) Expectancy-value Theory to explain college students' motivation for effectively coping with their academic stress by engaging in adaptive stress coping. In another word, it is first study in which achievement motivation indicators (e.g., causal attributions, subjective task value) would be recognized as cognitive appraisals that likely predict the selection of stress coping. If the findings of the study support the theoretical assumption,

academic achievement motivation factors should receive attention in the research area of college students' academic stress.

Definitions of Terms

Stress: A state of psychological arousal that results from external demands exceeding a person's adaptive ability and available resources (Lazaurs & Folkman, 1984).

Perceived stress: Stress that occurs "when an individual assesses a situation or stimulus as threatening regardless of whether or not the threat is an actual threat to the individual" (Largo-Wight et al., 2005, p.361).

Stress coping: "constantly changing cognitive and behavioral efforts to manage specific external, and/ or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p. 141).

Problem-focused coping (PFC): Individuals take action to control, moderate, or remove their stressful situation or events (Folkman & Lazarus, 1985). It is considered an adaptive coping strategy because it authentically changes the stressful situation or events (Carver et al., 1989; Folkman & Lazarus, 1985).

Emotion-focused coping (EFC): Individuals distance themselves from stressors, or escape and avoid stressors in order to get temporarily emotional releasing (Folkman & Lazarus, 1985). It is considered a maladaptive coping in the long term because it just moderates stressed people's interpretation or perception of stress (Carver et al., 1989; Folkman & Lazarus, 1985).

Cognitive appraisal: "A process through which a person evaluates whether a particular encounter with the environment is relevant to his or her well-being, and if so, in what way" (Folkman, et al., 1986, p. 992).

Primary appraisal: It is an initial assessment of the stimulus of a situation or an event as threatening or not threatening (Largo-Wight et al., 2005).

Secondary appraisal: "the stressed person evaluates what can be done to overcome or prevent harm or to improve the prospects for benefit" (Folkman, et al., 1986, p. 993). It is a complex process during which individuals think about what coping strategies are available, and what outcomes are likely associated with different coping strategies (Lazurus & Folkman, 1984; p.35).

Causal attributions for stress: The reasons used by individuals to explain their stressful situation or events. The definition was constructed based upon the definition of Weiner's (1985) causal attributions for success or failure.

Intrinsic value: "The enjoyment one gains from doing a task" (Wigfield & Eccles, 2000, p. 72).

Attainment value: "The importance of doing well on a given task" (Wigfield & Eccles, 2000, p. 72), or success on the task will support or confirm a person's valued characteristics (Cole et al., 2008).

Utility value: How a task will be useful/helpful for a person's future plans (Wigfield & Eccles, 2000).

Cost value: It is a negative value that refers to when engaging in one activity (i.e., doing school work), individuals are limited to do other activities (i.e., visiting a friend; Wigfield & Eccles, 2000).

Summary

The majority of freshmen commonly face stress when they transition from high school to university (Arthur, 1998; DeBread, Spielmans, & Julka, 2004; Elkins, Braxton, & James, 2000) which negatively impacts their academic achievement and persistence. Empirical evidence supports problem-focused coping as a stress reducer, but emotion-focused coping provides little aid to stressful situations in the long term. Thus, it is crucial to recognize factors that affect freshmen engaging in problem-focused coping rather than emotion-focused coping to effectively cope with their academic stress.

Although cognitive appraisal has been recognized as playing an important role in determining the selection of stress coping, no studies have examined which specific cognitive appraisals can predict freshmen's selection of stress coping. Empirical studies have reported that causal attributions and subjective task value were significantly associated with college students' academic motivation and achievement. A question was initiated: whether or not attributions and value can be cognitive appraisals that predict freshmen's motivation of coping with their stress. Integrating Lazarus and Folkman's (1984) Transactional Model of Stress and Coping with Weiner's (1985) Attribution Theory as well as Eccles et al.'s (1983) Expectancy-value Theory, the current study has been designed to examine how achievement motivation indicators, namely causal attributions for stress, and subjective value of college education as cognitive appraisals

mediate or moderate the relationship between perceived academic stress, and the selection of stress coping.

Chapter I has outlined the need, purpose, research questions, theoretical framework, significance, and definitions of terms. Chapter II contains a literature review of research related to the current study. First, a review of stress coping and the outcomes of stress. The next section reviewed literature in regard to cognitive appraisals and their prediction of the selection of stress coping. Chapter II concludes with a review of literature in regard to causal attributions and stress coping as well as subjective task value and stress coping. Chapter III is inclusive of the methods that were utilized in the study. It summarizes methods from the pilot study as well as the dissertation study including participants, setting, recruitment, a description of the research design, the procedure, instruments utilized in the study, and rational for data analysis. Chapter IV includes an extensive summary of the results of data analysis to address the five research questions. It includes the preliminary analyses of data, tests of Person Correlation as well as an overview of the mediation and moderation models. The study concludes in Chapter V, which includes a discussion of each research question, limitations and future directions, as well as the conclusion and significance of the study.

CHAPTER II

LITERATURE REVIEW

This literature review identifies and summarizes empirical evidence to validate the importance of the current study. Based on the purpose of the study, specifically to examine if causal attributions for stress and value of college education serve as cognitive appraisals mediating or moderating the selection of stress coping, as well as to examine the relationship among stress, cognitive appraisals, and outcomes of stress, in depth reviews of the literature involving the topics is provided below.

Stress Coping and Outcomes of Stress

First-year college students commonly face stress (Arthur, 1998; DeBread, Spielmans, & Julka, 2004; Elkins, Braxton, & James, 2000). When individuals experience stressful events or situations they are more likely to become disorganized and disoriented (Erkutlu & Chafra, 2006), which has been found to result in health problems (Kornitzer, Dramaix, & DeBacker, 1999), poor academic performance (Struther, Perry, & Menec, 2000), and dropping out of college (Perrine, 1999; Zhang & RiCharde, 1998). Empirical studies have found that different styles of stress coping was significantly associated with different stress outcomes (Carver et al., 1994; DeBerard, Spielmans, & Julka, 2004; Endler et al., 1994; Kim & Duda, 2003; Struther et al., 2000). For instance, problem-focused coping (PFC) was related to reduction of stress (Mattlin, Wethington, & Kessler, 1990), whereas emotion-focused coping (EFC) deteriorated stressful situation

in the long run (Carver, Scheier, & Weintraub, 1989; Kim & Duda, 2003).

Jones and Johnston (1997) examined the relationship between stress coping, levels of stress, and depression among first-year nursing students. They found that first-year nursing students commonly experienced high levels of stress. If students selected direct coping (problem-focused) to cope with their stress, the levels of stress and depression were significantly decreased. Furthermore, the study of Struthers, Perry, and Menec (2000) found that stress coping was also associated with college students' academic achievement. Although high levels of academic stress were significantly associated with low academic achievement, students who used problem-focused coping attained higher academic achievement than those who used emotion-focused coping. This finding was consistent with the study of Endler, Kantor, and Parker (1994).

DeBerard, Spielmans, and Julka (2004) also examined the relationship between stress coping and the outcomes of stress such as academic achievement and retention among college students. They found that acceptance responsibility coping ("blaming self for problems and using efforts to correct situations"; p.70), escape coping ("wishful-thinking that problem would go away and using efforts to escape or avoid problems"; p. 70), and social support together significantly predicated cumulative GPAs, and retention. It was unexpected that acceptance responsibility coping was significantly, positively correlated to low academic achievement, which conflicts with the findings of the previous studies (e.g., Smith & Ellsworth, 1985; Weiner, 1985): if students accepted responsibility for their academic performance, they would more likely put effort into their studies, and then attained high academic achievement. One explanation in this study is

that attributing stress to internal factors increased students' sense of helplessness, which negatively affected their academic achievement. The inconsistent findings require more studies to examine the relationship among cognitive appraisals, stress coping and academic achievement.

Kim and Duda (2003) examined the relationship between coping strategies and the immediate, and long-term effectiveness of the coping strategies. College athletes from American (n = 318) and Korean universities (n = 404) took part in the study. They found that both active/problem-focused coping and avoidance/withdrawal coping were effective in the short term after encountering a difficult experience. In the long term, active/problem-focused coping was associated with positive outcomes, such as high levels of satisfaction of career, enjoyment of sports, and persistence of sports. Alternatively, withdrawal coping was associated with negative outcomes in the long term.

In conclusion, the findings from the reviewed studies reveal that problem-focused coping is significantly associated with the positive outcomes in the long term, such as high academic achievement, persistence, less depression, satisfaction of career, and enjoyment of sports. However, why do some stressed individuals selected problem-focused coping but others do no? Researchers have found that individual's cognitive appraisals make a difference in the selection of stress coping (Anshel & Kaissidis, 1997; Folkman & Lazarus, 1980; Folkman et al., 1986; Kim & Duda, 2003; Lazarus & Folkman, 1984). The subsequent literature review would indicate that how cognitive appraisals predict the selection of stress coping.

Cognitive Appraisals Predict the Selection of Stress Coping

It is important to examine the factors affecting freshmen's selection of problem-focused coping in order to help them effectively cope with stress and attain success in college. Cognitive appraisal has been recognized as playing a significant role in predicting the selection of stress coping (Anshel & Kaissidis, 1997; Folkman & Lazarus, 1980; Folkman et al., 1986; Kim & Duda, 2003; Lazarus & Folkman, 1984).

Folkman and Lazarus (1980) examined how cognitive appraisals predict the selection of stress coping among community residents. They found that if people perceived they can do something, or they just needed more information to cope with their stressful situations, they more likely generated problem-focused coping. Alternatively, if they considered they had to accept their stressful situation, or had to hold back from action, they chose more emotion-focused coping. These findings are consistent with the studies of Folkman et al. (1986), Anshel and Kaissidis (1997), as well as Kim and Duda (2003) in that cognitive appraisal predicts the selection of stress coping. In addition, the study by Folkman et al. (1986) separated cognitive appraisals into primary and secondary appraisals, and then examined the relationship between the appraisals and selection of stress coping. A significant relationship between primary appraisals and stress coping were found when participants appraised stress as threatening to their self-esteem. In these instances they used a more confrontational, self-controlled, escape-avoidance coping and accepted more responsibility. Three types of relationships between secondary appraisals and stress coping were also found: (a) if participants appraised their stress as changeable, they selected a more confrontational and planned problem-solving coping;

(b) if they appraised the stress as having to be accepted, they selected more distancing and escape-avoidance coping; (c) if they appraised their stress as requiring more information before they could cope with it, they would seek more social support, and chose a more self-controlled, planned, problem-solving coping.

Empirical findings contribute to the conclusion that cognitive appraisals determine the selection of stress coping; however, all studies were conducted outside of college settings except for the study of Kim and Duda (2003) where the participants were college students. Although the participants in the study of Kim and Duda (2003) were college athletes, they examined the stress relating to athletic competition rather than academic study. Thus, it is unclear how college students' cognitive appraisals predict their selection of stress coping to cope with their academic stress. Furthermore, all above empirical studies used the terms of primary and secondary appraisal to represent cognitive appraisals, which are less informative and against Lazarus and Folkman's (1984) recommendation to recognize more accurate terms for cognitive appraisals. Finally, the assessment of cognitive appraisals only focused on individuals' interpretation or perception of their ability to control their stress. These leave gaps in the research in regard to cognitive appraisals of stress.

Causal attributions and subjective task value have been found to predict college students' academic motivation and achievement. Based upon past empirical findings, an assumption was that college students' causal explanation for stress and subjective value of college education are likely to predict their motivation for coping with their academic stress. To date no studies have recognized the two indicators as cognitive appraisals that

predict selection of stress coping and the outcomes of stress. Thus, it is valuable to examine the role of the two motivation indicators as cognitive appraisals in predicting the selection of stress coping. The subsequent literature review would indicate how causal attributions and subjective task value predict academic motivation and achievement. In addition, the literature review will reveal why causal attributions and subjective task value can be recognized as cognitive appraisals that likely predict the selection of stress coping.

Causal Attributions and Stress Coping

The importance of causal attributions on academic motivation and achievement has been widely demonstrated by a wealth of empirical studies (Cortes-Suarez, 2008; Gobel & Morie, 2007; Hsieh & Schallert, 2008; Perry et al., 2008). Perry et al. (2008) examined the relationship between causal attribution and academic failure among the first-year undergraduates. Participants included 3,140 freshmen at a mid-western Canadian university enrolled from 1992 to 2005. The study found that low effort was the most endorsed causal ascription used by students to explain their poor academic performance. Other factors listed in ranking order include: test difficulty, poor strategy, professor quality, natural ability, and bad luck. In terms of Weiner's (1985) perspective, this ranking of causal attributions had positive implications in improving students' poor academic performance because low effort, test difficulty, and poor strategy were controllable, unstable factors. The findings of the study indicate that causal attributions are associated with students' academic achievement. Specifically, students' causal attributions impact their motivation that in turn determines their academic achievement.

Cortes-Suarez (2008) compared differences in causal dimensions between successful and unsuccessful students in college algebra learning. Four hundred and ten freshmen and sophomores participated in the study, and were classified into passing group or failing group based on their test grades. The CDSII (McAuley et al., 1992) was used to measure the causal dimensions of success or failure causes for an in-class, college algebra test. It was found that successful students in the algebra class were more likely to attribute their success to internal causes such as ability and effort, whereas unsuccessful students attributed their failure to external or unstable causes such as task difficulties and luck. These findings are consistent with the findings of the previous studies (i.e., Bernstein, Stephan, & Davis, 1979; Hsieh & Schallert, 2008; Kovenkloughu & Greenhaus, 1978; Weiner, 1972) in that successful and unsuccessful students had different causal explanations for their success or failure.

Gobel and Mori (2007) also examined the association between casual attributions and academic performance in a study that was conducted at Japanese universities. They found that the six most adopted attributions for success were classroom atmosphere, teacher influence, interest in grades, class level, liking to learn English, and interest. Alternatively, the six most endorsed attributions for failure were effort, preparation, strategy, ability, interest, and dislike of learning English. These findings indicate that Japanese college students attributed their failure to internal causes rather than external causes. These attributions presented a self-critical pattern (acknowledgement of responsibility for failure outcomes) that was different from the western, self-enhancing pattern (denial of responsibility for failure outcomes), which are consistent with the

previous studies (Heine, Kitayama, & Lehman, 2001; Kitayama, Markus, Matsumoto, & Norasakunkit, 1997). In addition, they found that successful students were more likely to attribute their success to high ability and task difficulty, but attributed their failure to their dislikes.

In conclusion, the literature has provided empirical evidence to support causal attributions as predictors of college students' academic motivation and achievement. If students employ functional causal attributions (controllable causes) to explain their academic success or failure, they are more likely to attain high academic achievement, whereas if they use dysfunctional causal attributions (uncontrollable causes) to explain their academic success or failure, they are more likely to perform poorly.

The integration of the causal attribution and motivation literatures with the literatures on stress, cognitive appraisals, and stress coping leads to several assertions. First, causal attributions for stress can be recognized as a specific appraisal likely determining college freshmen's motivation for coping with their academic stress, which in turn predicts their selection of stress coping. For example, if freshmen attribute their academic stress to internal, unstable, and personally controllable causes, they would recognize more self-responsibility for their stress, have higher expectation and belief of ability to change their stressful situation, and then they would more likely engage in problem-focused coping. Alternatively, if they attribute their academic stress to external, stable, and personally uncontrollable causes, they would have lower expectation and belief of ability to change their stressful situation, and then they would more likely initiate emotion-focused coping. However, no studies have examined the role of causal

attributions as cognitive appraisal in predicting the selection of stress coping, nor has this been done for subjective task value, which will be discussed next.

Subjective Task Value and Stress Coping

Students' subjective value assigned to an educational outcome such as course enrollment, pursuing a higher academic degree, studying for tests etcetera, predicts their decisions or intentions to put forth effort to attain the educational outcome (Battle & Wigfield, 2003; Cole, Bergin, & Whittaker, 2008; Eccles et al., 1983; Feather, 1988; Hulleman, Durik, Schweigert, & Harackiewicz, 2008; Meece, Wigfield, & Eccles, 1990). Feather (1988) examined the association between subjective task value and course enrollment decision among college students. Three components of subjective task value were measured, such as intrinsic, attainment, and utility value. It was found that students who valued math or English courses as enjoyable, important, and useful were more likely to decide to register for these courses. The findings of the study indicate that subjective task value (value of the course) predict students' behavior choice (course enrollment).

Meece, Wigfield, and Eccles (1990) also examined the relationship between subjective task value and intention of course enrollment among 250 junior high school students. They found that high school students' perceived importance of math or English predicted their intention of enrollment in the course. In addition, they found that perceived ability indirectly predicted intention of course enrollment through subjective task value. Specifically, students who considered being able to succeed in the courses more valued the course as important, and then they were more likely to register in these

courses. The findings of the study are consistent with the study of Feather (1988) in that students' subjective task value can predict their behavior choice.

Moreover, Battle and Wigfield (2003) examined how college women's value of graduate education predicted their intentions of attending graduate school. Four components of subjective task value were measured: intrinsic, attainment, utility, and cost value. The study found that intrinsic-attainment, utility, and cost value together significantly predicted college women's intentions of attending graduate school. The intrinsic-attainment value was the strongest, positive predictor, followed by utility value. If college women valued graduate education as enjoyable, important, and useful, they would more likely choose to attend graduate school. Cost value was a significant, negative predictor. If college women rated the cost of graduate education as high, they would be less likely to choose attending graduate school. The findings of this study again support that if students value an educational assignment as enjoyable, important, and useful, they are more likely to choose working with the assignment.

Last, the study of Cole, Bergin, and Whittaker (2008) revealed that subjective task value predicted college students' effort and academic achievement. It was hypothesized that three components of subjective task value, intrinsic, attainment, and utility value, significantly predicted college students' test-taking effort, and that effort would significantly predict their test performance. They found that if students valued a test as important or useful, they will put forth efforts into the test preparation, and then they were more likely to achieve high test scores. The findings of this study are consistent

with the findings of Hulleman, Durik, Schweigert, and Harackiewicz (2008) in that subjective task value predicts college students' academic effort and achievement.

In conclusion, empirical studies have provided evidence to support Eccles et al.'s (1983) proposition of the Expectancy-value theory that subjective task value predicts students' behavior choice, effort, and academic achievement. When integrating literature about subjective task value with those about stress, cognitive appraisals, and stress coping, it is inferred that subjective task value can be a cognitive appraisal that mediates or moderates the relationship between perceived stress and the selection of stress coping. Specifically, when students perceive themselves as stressed, they will be motivated to engage in problem-focused coping if they also value their college education as enjoyable, important, useful, and/or rate its cost value as low. Alternatively, they will be more likely to engage in emotion-focused coping if they do not value their college education as enjoyable, important, useful, and/or rate its cost value as high. However, no studies to date have examined how subjective task value as a cognitive appraisal affects college students' motivation for coping with their stress, which in turn predicts their selection of stress coping.

Summary

A large number of empirical studies have found that college freshmen were commonly faced with academic stress. Stress is often associated with negative outcomes of college education such as low academic achievement, dropping out of college. Thus, it is important to help freshmen adaptively cope with their academic stress through engaging in problem-focused coping in order to improve their academic performance and

well-being. It was found that problem-focused coping reduced stress whereas emotion-focused coping exacerbated stressful situations in the long term. Thus, researchers have done much work examining factors predicting the selection of adaptive stress coping. Cognitive appraisals have been recognized as an important indicator that make a difference in the selection of stress coping. Empirical examinations of cognitive appraisals, however, only focused on the perception of whether or not a person was able to do something to control his or her stress. No studies have investigated college students' motivation for coping with their academic stress based upon achievement motivation theories, such as Weiner's (1985) Attribution Theory and Eccles et al.'s (1983) Expectancy-value Theory. Although, these two motivation indicators have been established as predictors of college students' academic motivation and achievement, the predictive effects of causal attributions and subjective task value on the selection of stress coping is unknown. Furthermore, Lazarus and Folkman (1984) strongly recommended recognizing more accurate terms to represent cognitive appraisals in future studies, rather than just use the terms of primary or secondary appraisals that are less informative; therefore, indicating value in recognizing causal attributions and subjective task value as cognitive appraisals and integrating them into the Lazarus and Folkman's (1984) TMSC to test their role in the relationship between perceived academic stress and the selection of stress coping.

Next chapter is inclusive of the methods that were utilized in the study. In Chapter III I summarize methods from the pilot study as well as from the dissertation

study by describing participants, setting, recruitment, the research design, procedure, instruments utilized, and rationale for data analysis.

CHAPTER III

METHODS

The purpose of the current study was to examine the role of achievement motivation indicators, specifically causal attributions and subjective task value, in the relationship between perceived academic stress and selection of stress coping. Additionally, the correlations among perceived stress, stress coping, and the outcomes of stress such as perceived academic success, expectation of success, responsibility of academic performance, and emotions were tested. This chapter outlines a pilot study and a research framework for the current dissertation that includes participants, setting, recruitment, research design, procedure, and strategies of data analysis.

Pilot Study

A pilot study was approved by the Institutional Review Board (IRB) at the University of North Dakota (UND). Participants were 114, first-year college students (Male = 15, Female = 99; Age M = 20, SD = 3.18) with 93.9 % of them self-identified as white/Caucasian. The students were enrolled in the introductory courses of early child education.

In the middle of spring semester, 2012, a researcher entered two classes to explain the research purpose and ask for volunteers for participation. In order to protect participants' confidentiality, the class instructors assigned each student an ID number.

Under the administration of the researcher, students completed a questionnaire. Nine measures were used in the pilot study to collect data: (1) Demographics and Background; (2) Perceived Academic Stress (adapted from the Perceived Stress; Cohen, Kamarck, & Mermelstein, 1983); (3) Causal Attributions and Dimensions (CDS II; McAuley, Duncan, & Russell, 1992); (4) Value of Higher Education (adapted from the Value of Education Scale; Battle & Wigfield, 2003); (5) Stress Coping (adapted from the Student Coping Scale ; Struthers, Perry, & Menec, 2000); (6) Perceived Academic Success; (7) Expectation of Success; (8) Responsibility for Academic Performance; (9) Emotions. All instruments were similar to those used in the dissertation study with the differences identified at the end of the pilot study.

Pilot Major Findings

Correlations. A large number of significant correlations among variables were identified (see Table 1). First, in regard to stress and coping. Perceived academic stress (PAS) was positively correlated with problem-focused coping (PFC) and emotion-focused coping (EFC). The findings revealed that if students perceived themselves as stressed, they engaged in two types of stress coping such as PFC or EFC. Second, in regard to stress coping and causal attributions, EFC was negatively correlated with locus of causality and personal control, but was positively correlated with external control. The findings suggest that the more students attributed their academic stress to internal or personally controllable causes, the less they would likely engage in EFC. However, the more they attributed their academic stress to externally controllable causes, the more they would likely engage in EFC. However, PFC was not correlated with any causal

dimensions in this study. Finally, in regard to stress coping and subjective task value, PFC was positively correlated with intrinsic value and negatively correlated with cost value while EFC was positively correlated with cost value. These findings indicate that if students place high intrinsic value or low cost value on college education, they were more likely to engage in PFC; otherwise, they were more likely to engage in EFC. It should be noted that although the correlation between subjective task value and stress coping was significant, the correlation coefficient was small (Gay, Mills, & Airasian, 2006).

Table 1. Correlations among Variables (Pilot Study).

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
1. Perceived academic stress	--	-.25**	.04	.14	-.26**	-.24**	-.05	-.04	.37*	.27*	.32**
2. Locus of causality		--	.02	-.30**	.69**	.02	.07	-.05	-.20*	.03	-.29**
3. Stability			--	.21*	.02	.08	-.08	-.06	-.08	.14	.23*
4. External control				--	-.32**	-.21*	-.20*	-.00	.27**	.05	.31**
5. Personal control					--	.23*	.14	-.07	-.27**	.03	-.22*
6. Intrinsic value						--	.17	.03	-.43**	.21*	-.15
7. Attainment value							--	.40**	-.07	-.04	-.10
8. Utility value								--	.09	-.02	-.06
9. Cost									--	-.24**	.33**
10. Problem-focused coping										--	-.08
11. Emotion-focused coping											--

Note. * $p < .05$, ** $p < .01$, two-tailed

Causal Attributions as a Mediator. One causal dimension, locus of causality partially mediated the relationship between PAS and EFC (see Figure 4). In addition, although two causal dimensions, such as personal control, external control did not mediate the predictive effects of PAS on emotion-focused coping, both directly predicted emotion-focused coping (see Figures 5 and 6). That is, if students attributed their academic stress to personally controllable causes, they were less likely to engage in emotion-focused coping. However, if they attributed their stress to externally controllable causes, they were more likely to engage in emotion-focused coping. Because none of the four causal dimensions (locus of causality, stability, external control, and personal control) predicted the PFC, the mediation models with PFC were not tested.

Table 2. Causal Attribution for Academic Stress as a Mediator between Perceived Academic Stress and Stress Coping (Pilot Study).

	Step 1: Stress on Stress Coping	Step 2: Stress on Attribution	Step 3: Attribution on Stress Coping	Step 4: Stress and Attribution on Stress Coping	Stress indirect effect (95% Bootstrap CI)	Stress via Attributions Mediation Type	Final model R^2
Stress – Locus of Causality – Stress– External Control – Emotion	β = .32***	β = -.25**	β = -.29**	β =- .22* β = .27** -	.06* .04	Partial Direct	.06 .08
Stress – Personal Control – Emotion	β = .32***	β = -.26**	β = - .22*	β = .28** β = -.15	.04*	Direct	.08

* $p < .05$, ** $p < .01$, *** $p < .001$

Note. In Step 4, the top coefficient represents perceived academic stress and the bottom coefficient represents attribution when both variables are included simultaneously in the multiple regression.

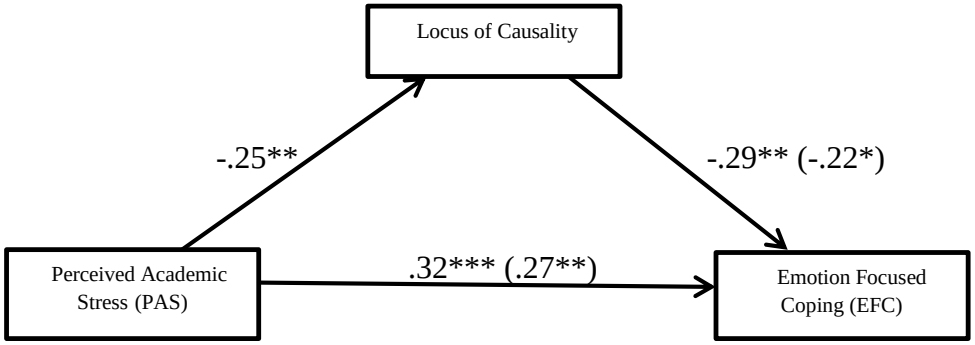

Figure 4. Locus of Causality Partially Mediates the Relationship between PAS and EFC. Note: *p <.05, ** $p < .01$, ***$p < .001$.

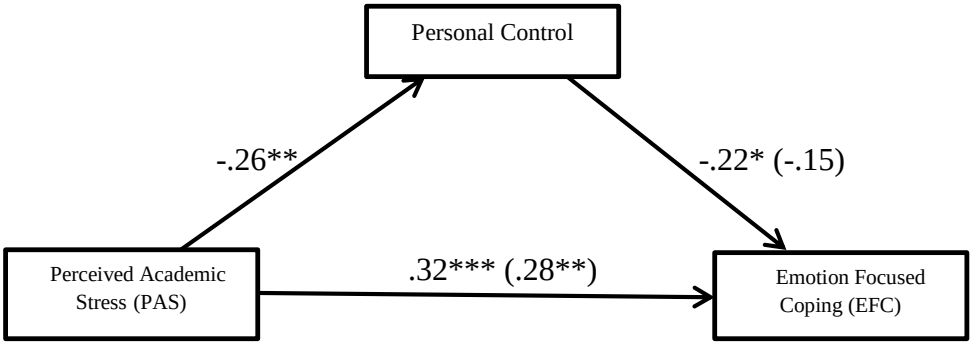

Figure 5. PAS and Personal Control Directly Predict EFC. Note: *p <.05, ** p < .01, ***p < .001.

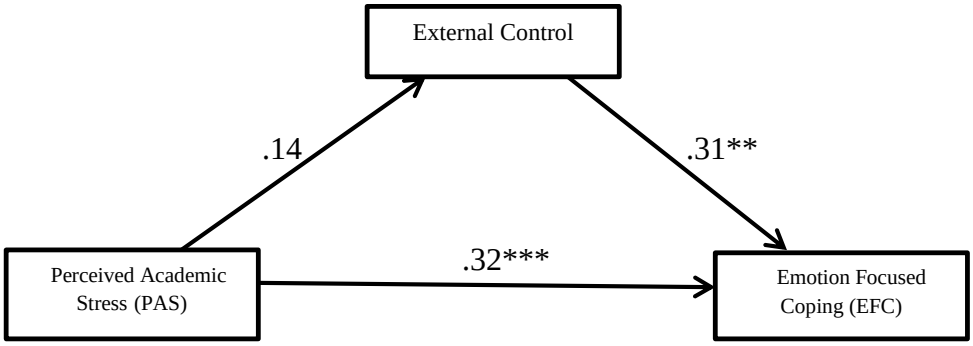

Figure 6. PAS and External Control Directly Predict EFC. Note: ** p < .01, ***p < .001.

Subjective Task Value as a Mediator. Three mediational mechanism were found (see Table 3). First, cost value partially mediated the relationship between PAS and EFC (see Figure 7). Then, PAS indirectly predicted PFC through both intrinsic (see Figure 8) and cost value (see Figure 9). Thus, if freshmen rated the cost value of their college education as high, they more likely engaged in emotion-focused coping. Alternatively when they perceived themselves as stressed, they engaged in problem-focused coping if they intrinsically valued their college education as enjoyable, and/or rated its cost as low. Therefore,, the findings provide evidence that subjective task value mediates the relationship between PAS and the selection of stress coping.

Table 3. Subjective Task Value as a Mediator between Perceived Academic Stress and Stress Coping (Pilot Study).

	Step 1: Stress on Stress Coping	Step 2: Stress on Value	Step 3: Value on Stress Coping	Step 4: Stress and Value on Stress Coping	Stress indirect effect (95% Bootstrap CI)	Stress via Causal Attributions Mediation Type	Final model R^2
Stress – Intrinsic Value – Problem Focused Coping	β = .10	β = -.24*	β = .21*	-	-.08*	Indirect	.07
Stress– Cost Value– Problem Focused Coping	β = .10	β = .37***	β = -.24**	-	-.17*	Indirect	.10
Stress-Cost Value- Emotion Focused Coping	β = .32***	β = .37***	β = .34***	β = .23* β = .26**	.10*	Partial	.16

* $p < .05$, ** $p < .01$, *** $p < .001$

Note. In Step 4, the top coefficient represents perceived academic stress and the bottom coefficient represents Value when both variables are included simultaneously in the multiple regression.

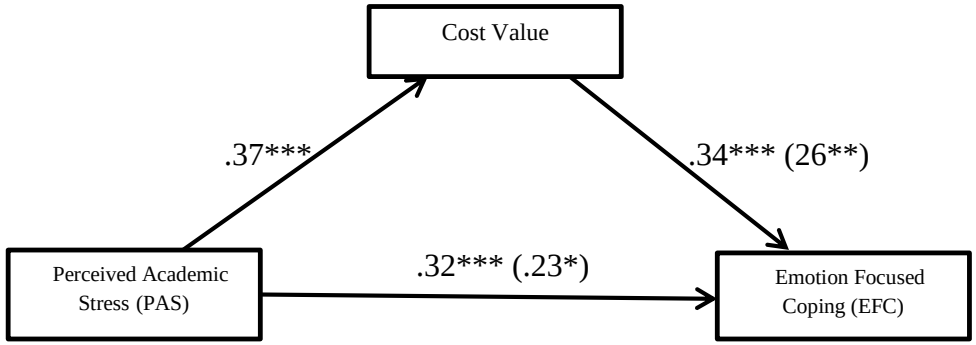

Figure 7. Cost Value Partially Mediates Relationship between PAS and EFC. Note: *p <.05, ** $p < .01$, ***$p < .001$.

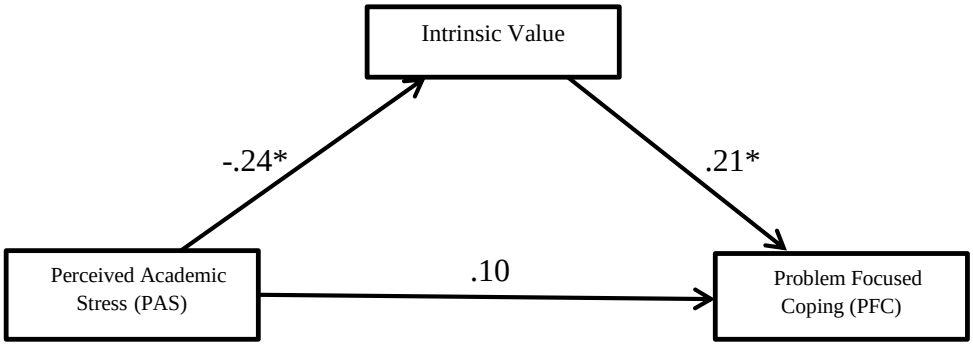

Figure 8. PAS Indirectly Predicts PFC through Intrinsic Value. Note: *p <.05.

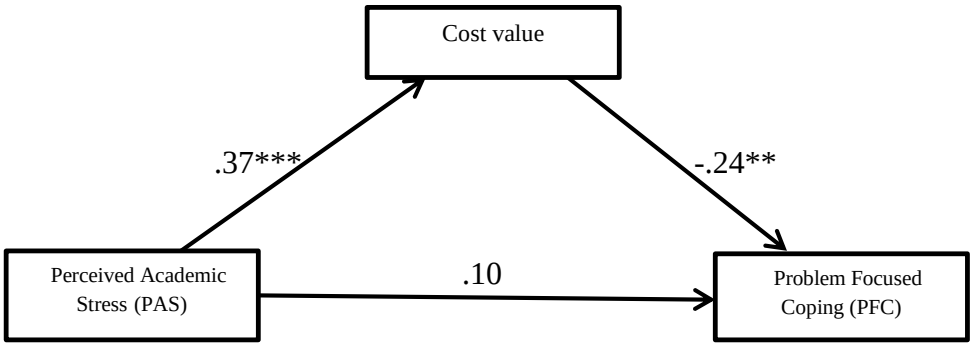

Figure 9. PAS Indirectly Predicts PFC through Cost Value. Note: ** p < .01, ***p < .001.

Implications of the Pilot Study for the Dissertation Study

The findings of the pilot study support the proposed study in the following aspects. First, the theoretical framework worked well as several of research questions were addressed. That is, causal attributions and subjective task value can be recognized as cognitive appraisals that partially mediated the relationship between perceived academic stress and the selection of stress coping. Second, all measurement scales had high levels of reliability.

Based upon the findings of the pilot study, several improvements were made in the dissertation study. First, the causal attributions scale was changed slightly. In the pilot study, students were asked to provide multiple causal ascriptions for their academic stress, which was done in a study conducted by Dong, Stupnisky, and Berry (2013); however, the data analysis in the pilot study indicated that it is enough to rate one causal ascription for academic stress. Decreasing the number of survey questions would also likely improve response rate and reduce participant fatigue (Dillman, Tortora, & Bowker, 1998).

Second, the scale for problem-focused coping (PFC) was slightly changed as well. In the pilot study, no significant relationship between PFC and the four causal dimensions were found, which revealed that there might be problems with this scale. The PFC scale included two sub-scales: "Academic Planning" and "Active Study Coping". It was suspected that the listed strategies of Active Study Coping such as "I buy a study guide" and "I use my study guide" were not typically used by American college freshmen. The measurement was constructed by Struthers et al.'s (2000) study that was conducted among Canadian college students. This suspicion was supported by the findings of the study that 70% of participants rated these two strategies at 3 points or below (*min* = 1; *max* = 6). Consequently, the PFC scale was revised by replacing the "Active Study Coping" with the "General Active Coping" in order to improve the construct validity of the PFC. Third, although the data relating to expectation of success, perceived success, responsibility of academic performance, and emotions were collected in the pilot study,

the variables were not tested. In the dissertation study, these variables would be included into data analysis in order to obtain more inclusive findings.

Dissertation Study

Participants, Setting, and Recruitment

Five hundred and twenty (Male = 229, Female = 290, unspecified = 1) undergraduates with different years at college were recruited as voluntary participants. Each was enrolled in a 100 level science (biology, physics) or math course at a medium-sized, research comprehensive university in the mid-western United States. For the current study, only the 321 (Male =132, Female =189) first-year college students were included in the final data analysis, which accounted for 11% of college freshmen (381 out of 2866) registering at the university at fall semester 2013 (Office of Institutional Research of UND, 2013). All participants were from different major fields, such as health related majors (32%), biological science (21%), business (10%), undecided majors (10%), education (5%), psychology (4%), humanities (4%), and others (14%; aviation, chemical science, math & statistics, and physical science). Their average age was 18 years old (*SD* = .89) and 93.5% of them self-identified as white/Caucasian.

Research Design

The study was a cross-sectional, in-class survey research design. In tested models 1 and 2 (see Figures 10 and 11). The independent variable was perceived academic stress, the mediators or moderators were the causal dimensions (locus of causality, stability, external control, and personal control), and the dependent variable was stress coping which included problem-focused coping (academic planning, general active) and

emotion-focused coping (denial, academic disengagement). In tested models 3 and 4 (see Figure 12 and 13), the independent variable was perceived academic stress, the mediators or moderators were the subjective value of college education (intrinsic, attainment, utility, and cost value), and the dependent variable was stress coping which included problem-focused coping (academic planning, general active) and emotion-focused coping (denial, academic disengagement).

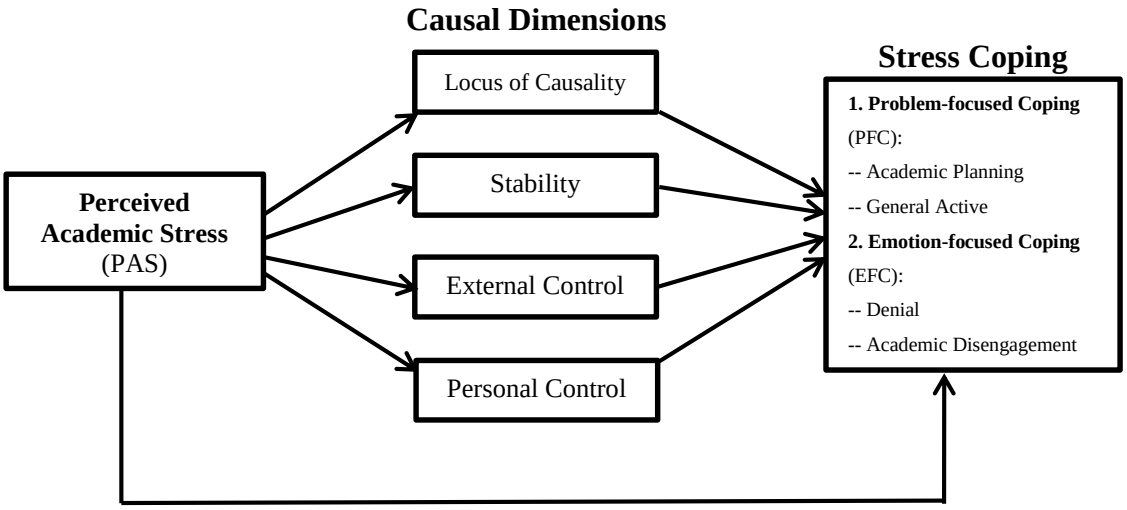

Figure 10. Tested Model 1: Mediation Model of Academic Stress, Causal Dimensions and Stress Coping.

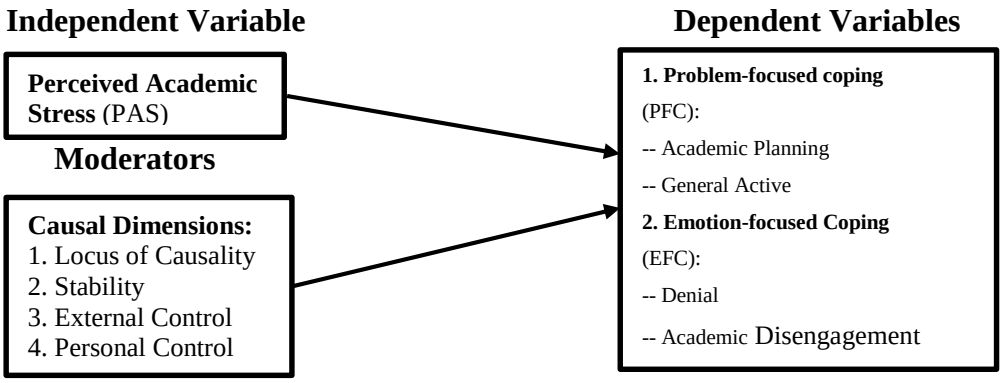

Figure 11. Tested Model 2: Moderation Model of Academic Stress, Causal Dimensions and Stress Coping.

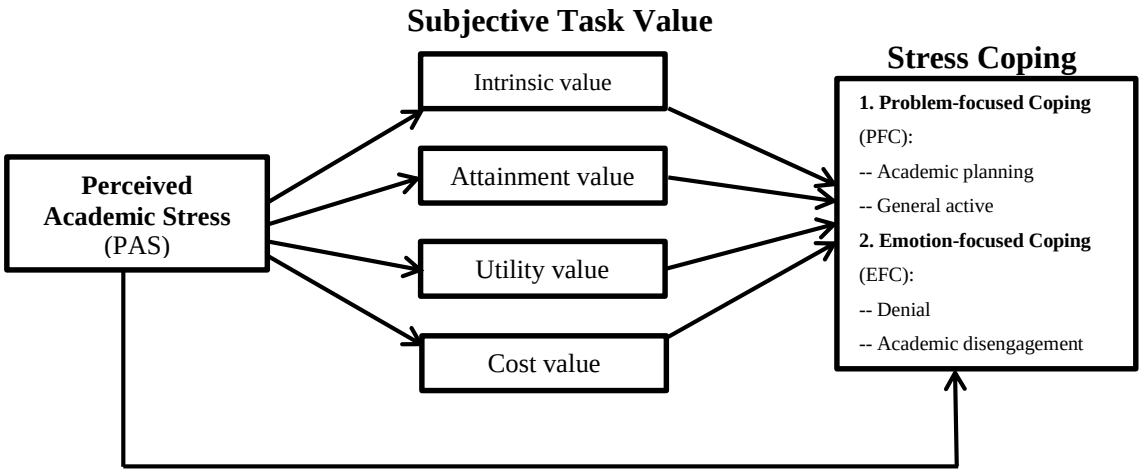

Figure 12. Tested Model 3: Mediation Model of Academic Stress, Subjective Task Value and Stress Coping.

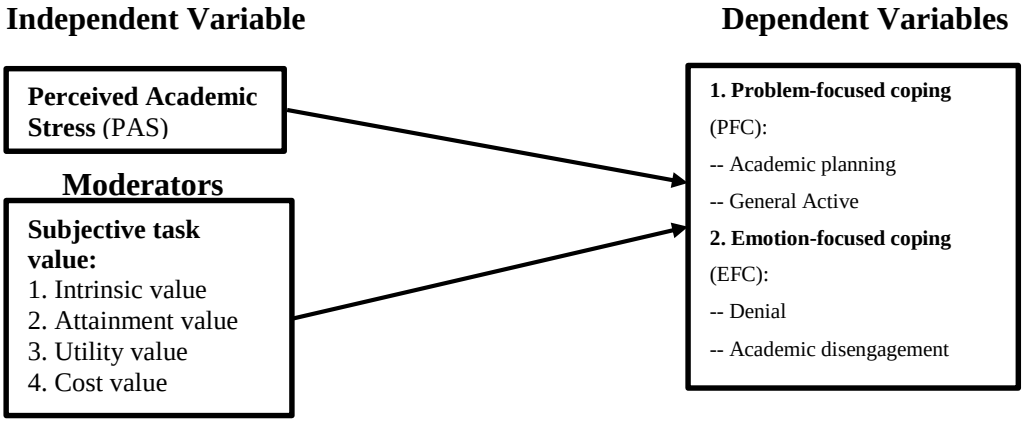

Figure 13. Tested Model 4: Moderation Model of Academic Stress, Subjective Task Value and Stress Coping.

One survey was administered to six different classes. Survey methodology is a common method of quantitative research (Gay et al., 2006). One of the strengths of survey research is that it is easy to get a large sample size (Krathwohl, 1998). In addition, based upon the previous research experience (Dong et al., 2013), the response rate as well as the data quality from a class survey was better than what would have been

expected from an on-line survey that would have been completed outside of the structure of a classroom.

Procedure

In the early fall semester 2013, an application package for a dissertation research project was submitted to Institutional Research Board (IRB) at the University of North Dakota (UND). The researcher received IRB approval on September 9, 2013. On September 13, 2013, an application for revising the questionnaire was submitted to IRB because a dissertation committee member suggested adding one question of social economic status (SES). The revision was approved on September 19, 2013.

All surveys were conducted near the mid-term examination period in fall semester 2013 (on Oct.4th, 22nd, 24th) when students faced relatively high levels of academic stress. One week before each survey, class instructors helped by posting a Conformation Sheet approved by IRB which is similar to a consent form for participation in this study on the on-line Blackboard site for the course in order to provide students with information about the research purpose, participants' rights, principle of voluntary participation, as well as contact information for the researcher and IRB.

The researcher visited each class and administered the survey. Prior to students beginning the survey, the researcher briefly introduced the purpose of survey, explained the principle of voluntary participation, answered questions about the survey, and expressed thanks to the instructors and students. Under the researcher's administration, students spent 15-20 minutes to complete the survey and return it to the researcher.

Instruments

Nine measure scales were used to collect data: (1) Demographics and Background, (2) Perceived Academic Stress, (3) Causal Attributions and Dimensions, (4) Value of Higher Education, (5) Stress Coping, (6) Perceived Academic Success, (7) Expectation of Success, (8) Responsibility for Academic Performance, and (9) Emotions.

Demographics and background. Five survey items addressed demographic and background variables relevant to stress in order to provide data to explore possible additional factors which may be related to student stress: gender, age, major, ethnicity, and year(s) in college. Multiple studies have found that female college students reported experiencing more stress as well as reacting to stressors more intensely than their male counterparts (e.g., Allen & Hiebert, 1991; Misra, McKean, West, & Russo, 2000). Nontraditional (aged 24 years old or above; Horn, 1996), immigrant and minority student populations have been found to experience more stress than white/Caucasian students (Moritsugu & Stanley, 1983; Smedley, 1993). Thus, age and ethnicity should be taken into account in the studies of stress. In order to recognized college freshmen of the participants, a background question, "what year of college you are in" was included in the survey.

Perceived academic stress. The current study scale was developed by adapting the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983). The PSS measures the degree that individuals appraise an event or situation as stressful (Cohen et al., 1983), and it is recognized as the most broadly used instrument measuring perceived stress (Cohen, 2014). Because the questions in the PSS are general, the scale can be

adapted to any population. In the study by Cohen et al. (1983), they examined the PSS with 14 items among three samples: two groups of college students and one group of community participants from a smoking-cessation program. The reliability of the PSS in each group respectively was α = .84, α =.85, and α = .86. The test-retest correlation of 2 to 6 weeks was .85 for college student samples, but .55 for community samples. Thus, the PSS is a scale measuring the perception of stress with high levels of reliability and validity. Adaption of the PSS to the Perceived Academic Stress scale was through specifying stress perceptions pertaining to a college study. Participants were asked 6 questions to rate their perceptions of academic stress on a 5-point scale (1 = *Never*, 5 = *Very often*; see Appendix A). High scores on the scale represented high levels of perceived academic stress.

Causal attributions and dimensions. In the first portion of this scale, students' single causal ascriptions for perceived academic stress were measured with an open-ended question: "Please name the most significant cause for your academic stress in this semester." Students were encouraged to provide any cause for their perceived academic stress. Thus, one unique characteristic of this study was measuring freshmen's causal explanations for their perceived academic stress. Next the participants rated the causal ascriptions on the Revised Causal Dimension Scale (CDS II; McAuley, Duncan, & Russell, 1992). It should be noted that the CDS II separates Weiner's (1985) causal dimension of controllability into two dimensions: External control and personal control. McAuley, Duncan, and Russell (1992) argued that as the controllability is separated into external controllable and personal controllable dimensions, the reliability of CDSII

become higher than CDS. Also, four causal dimensions become more statistically distinct than three causal dimensions.

Thus, four causal dimensions were measured on a 9-point, bipolar scale. Example items for each causal dimension are: Locus of Causality (Outside of you 1 2 3 4 5 6 7 8 9 Inside of you), Stability (Temporary 1 2 3 4 5 6 7 8 9 Permanent), External Control (Over which others have no control 1 2 3 4 5 6 7 8 9 Over which others have control)**,** and Personal Control (You cannot regulate 1 2 3 4 5 6 7 8 9 You can regulate). High scores for each causal dimension represented high levels of internality, stability, external controllability, and personal controllability.

The CDS II has been found to have acceptable reliability in previous studies, such as the Cronbach's α levels for each causal dimension was from .67 to .82 (McAuley et al., 1992). In the study of McAuley et al. (1992), through evaluation of the goodness-of-fit index (GFI) statistic reported by LISREL VII, the model with four causal dimensions indicated an excellent fit to the data, X^2 (n = 380) = 96.85, $p < .001$, GFI = .958. The loadings for each causal dimension were highly significant, which accounted for 31% to 67% of the variation. Thus, this is a scale measuring causal dimensions with high levels of reliability as well as construct validity.

Value of higher education. This scale was developed by the study through adapting the Battle and Wigfield's (2003) Value of Education Scale (VOE). The VOE measures four components of subjective task value of graduate education, which includes intrinsic, attainment, utility, and cost value. In the study conducted by Battle and Wigfield's (2003), four factors emerged from the 51 items that had factor loadings

greater than .40, and the Cronbach's α for intrinsic-attainment value was .96, for utility value was .76, and for cost value was .85. Thus, this scale indicates high levels of validity and reliability.

In the current study, adapting the VOE to the Value of Higher Education (VHE) has been conducted by replacing the words pertaining to graduate education with the words relating to college education. The VHE assessed four components of Eccles et al.'s (1983) subjective task value to include: intrinsic value (I find the idea of being a college student to be very appealing), attainment value (I feel that I need an university education to fulfill my potential), utility value (A university degree is important to me because it will provide better job opportunities), and cost value (University education would not be worth it if I had to work hard after I got out to re-pay a long term student loan). All items were rated on a 1-5 Likert scale (1= *Strongly disagree,* 2= *Disagree*, 3= *Slightly disagree,* 4= *Agree,* 5 = *Strongly agree*). The high scores of each construct represented high levels of intrinsic, attainment, utility, and cost value.

Stress coping. The scale was developed by adapting the Student Coping Scale (SCOPE) constructed by Struthers et al. (2000) based on the dispositional COPE scale (Carver et al., 1989). The original SCOPE included 30 items grouped into two constructs: problem-focused coping (PFC) and emotion-focused coping (EFC). In the study by Struthers et al. (2009) a factor analysis was conducted with a principal component extraction and varimax rotation. Factor 1, labeled as PFC, consisted of four subscales with high factor loadings, such as .77 for General Active Coping, .77 for Academic Planning Coping, .67 for Active Study Coping, and .62 for Efficacy. Factor 2

labeled as EFC also consisted of four subscales with acceptable factor loadings, such as .41 for Emotion Venting, .37 for General Emotion Support, .78 for Denial Coping, and .72 for Academic Disengagement. The Cranach's alpha level of each construct respectively was .80 for PFC, and .70 for EFC. Hence, the SCOPE is a reliable and valid scale measuring academic stress coping.

Based upon the definitions of PFC and EFC in current study, 16 items were selected from the SCOPE to develop the SC. The PFC includes two constructs: Academic Planning Coping where the respondent indicates he/she makes a plan of action to cope with the stress, and General Active Coping where the respondent indicates he/she tries to come up with a strategy about what to do to with stress. The EFC also includes two constructs: Denial Coping where the respondent indicates he/she refuses to believe that stress happened, and Academic Disengagement Coping where the respondent indicates he/she reduces the amount of effort put into solving the problem. All items are measured on a 10 point scale which ranges from 1= *Not at all true of me* to 10= *Very true of me*.

Perceived academic success. A single item measured students' perceived academic success by asking participants (1 = *Very unsuccessful*, 10 = *Very successful*): "How successful do you feel you are in college overall this semester?"

Expectation and responsibility. One item measured students' expectation of success (1 = *Not at all true of me*, 10 = *Very true of me*): "I expect to do well overall at college this semester". Using the same response scale, a single item measured students'

perceived responsibility for their academic performance: "I feel responsible for my academic performance in college this semester."

Emotions. Participants were asked to rate the extent of emotion experienced this semester (1 = *Not at all* to 10 = *Very much so*), such as hope, pride, anger, shame, helplessness, boredom, guilt, and depression.

Rationale for Data Analysis

Normality. Skewness is one of normality tests, and it is a measure of how far the curve of the frequency distribution is from the normal curve (Mertler & Vannatta, 2005). If the skewness value of a variable is outside the range of +1.0 to -1.0, the score distribution of the variable is considered skewed (Leech, Barrett, & Morgan, 2005). It is recommended to test Skewness for the parametric tests (Doane & Seward, 2011).

Cronbach (1957) argued that since correlation and regression inherently deal with variation rather than central tendency (distribution of means), both tests are robust with respect to non-normally distributed data. This argument has been supported by a number of researchers, such as Pearson (1931, 1932a, b), Havlicek and Peterson (1976), as well as Norman (2010). They concluded that "The Pearson *r* is rather insensitive to extreme violations of the basic assumptions of normality and the type of scale" (Norman, 2010, p. 630).

Reliability. As discussed above, many of the measurements have been used in published empirical studies and were found to have high reliability (Battle & Wigfield, 2003; Cortes-Suarez, 2008; Feather, 1988; Folkman & Lazarus, 1980; Hsieh & Schallert, 2008; Struther, Perry, & Menec, 2000). Nevertheless, the reliability of each scale was

tested through calculating the Cronbach's alpha level that should be above .70 in this study (Leech et al., 2005).

Confirmatory factor analysis. Factor analysis is a technique that measures inter-correlation among individual items in an instrument in order to determine if a group of items together can determine the amount of variance that is accounted for by the construct (Gall, Gall, & Borg, 2005). There are two types of factor analysis: exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). In this study, the CFA would be tested using AMOS.

CFA is often used when researchers can construct tested models based on theoretical frameworks, and/or empirical findings that postulate relations among variables (Byrne, 2010). The hypothesized structure can then be tested statistically. The purpose of testing the CFA models is to determine the goodness of fit between the hypothesized model and the sample data. Because it is impossible that the hypothesized model can be a perfect to fit with the observed data, there are necessary differences (residual) between the model and data. Thus, the relationship between the data and model can be represented as Data = Model + Residual. Since the CFA model is concerned with the goodness of the tested model fit to the collected data, the path coefficients (factor loadings) from the latent variables (unobservable variables) to the observable variable are of primary interested. In this study, the factor loading of each observable variable should be equal or above .40.

In the present study, the CFA models were separately tested for the following constructs: perceived academic stress, four causal dimensions (locus of causality,

stability, external control, and personal control), four components of subjective task value (intrinsic, attainment, utility, and cost), and four types of stress coping (academic planning, general active, denial, and academic disengagement). The quality of fit for all CFA models were examined by testing the traditional chi-square (x^2) test, the root mean square error of approximation (RMSEA), the comparative fit index (CFI), and the Tucker-Lewis index (TLI). The cut point value for Goodness of Fit are recommended as follows: RMSEA < .08 (Browne & Cudeck, 1993), CFI >.90 (Bentler, 1990), and TLI >.90 (Tucker & Lewis, 1973).

Descriptive Statistics and Correlation

Descriptive statistics are used to describe the basic features of the data in a study. It is the foundation of a quantitative data analysis (Trochim, 2006). For this study, descriptive statistics was applied to calculate the *mean, standard deviation*, *minimum* and *maximum* value of each construct: perceived academic stress, four causal dimensions (locus of causality, stability, external control, personal control), four components of subjective task value (intrinsic, attainment, utility, cost), four types of stress coping (academic planning, general academic, denial, academic disengagement), perceived academic success, expectation of success, responsibility for academic performance, and emotions (pride, hope, anger, shame, hopeless, guilt, depression).

Correlations are used to describe the relationship between two variables, and the strength of the relationship can be described by the correlation coefficient, *r*. The value of *r* can be from -1 to +1, and the larger value of the correlation coefficient represents the stronger relationship between the two variables (Gay et al., 2006). However, it is

important to remember that the correlation demonstrates a relationship between the variables and not causal inference (Gall, Gall, & Borg, 2005). For this study, correlation tests were used to address the research questions of 1, 2, and 3, and specifically to the correlation among stress, coping, and outcomes of stress (e.g., perceived academic success, expectation of success, responsibility for academic performance, and emotions).

Mediation Models

A mediational model examines the relationship mechanism between an independent variable and a dependent variable via the third variable named a mediator variable (Hayes, 2013). Thus, the mediational model hypothesizes that the independent variable influences the mediator variable, which in turn influences the dependent variable. Following Baron and Kenny (1986) as well as Hayes (2013), four-step regressions with bootstrapping were conducted to test two mediation models; specifically, such as the mediating effect of causal attributions (locus of causality, stability, external control, personal control) for stress on the relationship between perceived academic stress and the selection of stress coping, and the mediating effect of subjective value (intrinsic, attainment, utility, and cost value) of college education on the relationship between perceived academic stress and the selection of stress coping.

Four step regression analyses. In the first step, stress coping was regressed on PAS. In the second step, causal attributions for stress or value of college education were regressed on PAS. In the third step, stress coping was regressed on causal attributions for stress or on value of college education. In the fourth step, stress coping was regressed on PAS while controlling for causal attributions or subjective task value.

Bootstrapping analysis. This analysis included three steps. In the first step, the Hayes' (2013) bootstrapping macro was run through SPSS. In the second step, the syntax of mediation was written by entering the independent variable (perceived academic stress), mediators (four causal dimensions: locus of causality, stability, external control, personal control as well as four components of subjective task value: intrinsic, attainment, utility, and cost), and the dependent variable (problem-focused coping: academic planning, general active; and emotion-focused coping: denial, academic disengagement). In the third step, all mediational syntax with different mediators and dependent variables were run in the proper combinations to test all possible mediational relationships.

Analysis of outcomes. Three types of mediation mechanism are possible (Baron & Kenny, 1986; Hayes, 2013): (a) full mediation, (b) partial mediation, and (c) indirect prediction. Full mediation refers to both the independent variable and mediator significantly predicting the dependent variable; however, the predictive effects of the independent variable on the dependent variable would not be significant after controlling for the effects of the mediator. Partial mediation refers to both the independent variable and mediator significantly predicting the dependent variable, and the predictive effects of the independent variable on the dependent variable will be changed (i.e., reduced) after controlling for the effects of the mediator. Indirect prediction refers to the independent variable not significantly predicting the dependent variable; however, the independent variable significantly predicts the mediator that in turn significantly predicts the dependent variable.

Moderation Models

A moderation model examines the simultaneous influence of two predictors (Hayes, 2013): one is an independent variable (X,) the other is a moderator (Z) on a third variable (dependent variable, Y). For example, the strength of the relationship between X and Y will be changed, such as to get stronger, or weaker depending on the effects of the Z. Following the research practices of Preacher, Curran, and Bauer (2004), two moderation models were tested in this study. One is the moderating effect of causal attributions for academic stress (locus of causality, stability, external control, personal control) on the relationship between perceived academic stress and the selection of stress coping, and the other is the moderating effect of the subjective value of a college education (intrinsic, attainment, utility, and cost value) on the relationship between perceived academic stress and the selection of stress coping.

Five step analyses. Five steps together tested the moderation models. First, a regression equation was constructed, $Y= b_0+b_1X+b_2Z+b_3XZ$. In this equation, Y represented the dependent variable (four types of stress coping, such as academic planning, general active, denial, and academic disengagement were respectively as the dependent variable); X represented the independent variable (PAS); Z represented the moderator (four causal dimensions: locus of causality, stability, external control, personal control; or four components of subjective task value: intrinsic, attainment, utility, and cost value were respectively as the moderators). The intercept of the equation was b_0, while b_1, b_2, b_3 were regression parameters for the independent variable, moderator, and interaction term (independent variable × moderator). Second, the independent variables

and moderators were centered by subtracting the mean from all values. Third, interaction terms were constructed by multiplying the centered independent variables and centered moderators. Fourth, the regression equation was tested through the linear regression function in SPSS. Fifth, if the interaction term (X×Z) significantly predicted Y, all tests suggested by Preacher et al. (2004) were done through an online tool to produce a plot of interaction effect.

Next chapter includes an extensive summary of the results of data analysis to address the five research questions. It includes the preliminary analyses of data as well as an overview of the mediation and moderation models.

CHAPTER IV

RESULTS

The purpose of the study was to examine how motivation indicators (causal attributions, subjective task value) mediate or moderate the relationship between perceived academic stress and stress coping. In addition, the relationship among stress, stress coping, and outcomes of stress was to be examined. The data analysis included a preliminary analysis, testing mediation models, and testing moderation models, which were chosen in order to address the research questions.

Research Questions

1. Is freshmen perceived academic stress correlated with their perceived academic success, expectation of success, responsibility for academic performance, and emotions?

2. When freshmen perceive themselves as stressed, what type of stress coping do they typically engage in?

3. Is given stress coping correlated with certain outcomes of stress, such as perceived academic success, expectation of success, responsibility for academic performance, and emotions?

4. Do casual attributions for academic stress mediate or moderate the relationship between perceived academic stress and the selection of stress coping? Specifically, when freshmen perceive themselves as stressed, would they more likely engage in problem-focused coping if they attribute their stress to internal, unstable, or personally controllable

causes? Alternatively, would they more likely engage in emotion-focused coping if they attribute their stress to external, stable, or personally uncontrollable causes?

5. Does subjective value of college education mediate or moderate the relationship between perceived academic stress and the selection of stress coping? Specifically, when freshmen perceive themselves as stressed, would they more likely engage in problem-focused coping if they place high intrinsic, attainment, utility value, and/or low cost value on college education? Alternatively, would they more likely engage in emotion-focused coping if they place low intrinsic, attainment, utility value, and/or high cost value on college education?

Preliminary Analysis

Normality

Normality was examined for all study variables. The scales of perceived academic stress and causal dimensions showed that the data were normally distributed because the value of skewness for each item was within the range of +1.0 to -1.0. In addition, the most items of the stress coping scale also indicated the data distribution was normal with exceptions for items of 11, 12, 13, 15, and 16 whose range of the skewness value was from +1.0 to +3.8. Finally, most items in the scale of the value of higher education indicated the data distribution was skewed because the range of their skewness value was from +2.0 to -2.0 except for items of 2, 8, 13, 15, and 16.

As discussed in the rationale of data analysis of the chapter 3, a number of literature have supported that both Person correlation and regression are robust with respect to non-normally distributed data (Cronbach, 1957; Havlicek & Peterson, 1976;

Norman, 2010; Pearson, 1931; 1932a, b). Since Person correlation and regression would be tested to address all research questions in this study, some skewed data of the study were not concerned.

Reliability and Descriptive Statistics

Based on George and Mallery's (2003) recommendations for reliability level, all multi-item measures were found to have acceptable levels of reliability, such as $\alpha > .70$, except for the stability scale ($\alpha = .46$); thus, no further data analysis on stability was conducted. Through examination of the frequency distributions and variable mean scores (Table 4), it was found that the participants typically made adaptive attributions for their academic stress, specifically to internal, and personally controllable causes. They also highly valued their college education as enjoyable, important, useful, and/or rated its cost as low. In addition, they tended to more engage in problem-focused coping (e.g., academic planning, general active) than emotion-focused coping (e.g., denial, academic disengagement). Finally, the participants reported high levels of perceived academic success, expectation of success, responsibility for academic performance, and reported more positive than negative emotions.

Table 4. Means, Standard Deviations, and Cronbach's Alpha Level of Variables.

Variable	*M*	*SD*	*Min*	*Max*	*α*
Perceived Academic Stress	2.91	0.62	1.00	5.00	0.74
Locus of Causality	5.56	1.73	1.00	9.00	0.79
Stability	4.68	1.63	1.00	9.00	0.46
External Control	4.69	1.86	1.00	9.00	0.75
Personal Control	5.98	1.73	1.00	9.00	0.74
Intrinsic Value	4.89	0.80	1.00	6.00	0.79
Attainment Value	5.10	0.91	1.00	6.00	0.79
Utility Value	5.47	0.70	1.00	6.00	0.83
Cost value	2.76	1.00	1.00	6.00	0.71
Academic Planning Coping	5.87	2.13	1.00	10.00	0.90
General Active Coping	6.28	1.78	1.00	10.00	0.77
Denial	3.26	1.94	1.00	10.00	0.83
Academic Disengagement	2.15	1.39	1.00	10.00	0.72
Hope	7.59	1.96	1.00	10.00	n/a
Pride	6.79	2.13	1.00	10.00	n/a
Anger	5.18	2.57	1.00	10.00	n/a
Shame	4.02	2.61	1.00	10.00	n/a
Helpless	4.11	2.53	1.00	10.00	n/a
Guilt	3.63	2.69	1.00	10.00	n/a
Depression	3.19	2.62	1.00	10.00	n/a

Confirmatory Factor Analysis

The purpose of testing the Confirmatory Factor Analysis (CFA) is to determine the goodness of fit between the hypothesized model and the sample data. The CFA is theory driven (Byrne, 2010), which means the tested CFA models are constructed based upon the theoretical framework. Since three major theories have guided the current study: Lazarus and Folkman's (1984) TMSC, Weiner's (1985) Attribution theory, and Eccle's (1983) Expectancy-value theory, four CFA models have been constructed, and tested: (1) the CFA model of perceived academic stress, (2) the CFA model of causal attributions, (3) the CFA model of value, and (4) the CFA model of stress coping.

The first constructed model was the CFA Model of Perceived Academic Stress (Figure 14). The original model included 6 indicators, and all indexes showed acceptable fit to the data, x^2 (9, 321) =31.97, *p* =.000, CFI = .96, TLI =.93 except for the RMSEA =.09. After removing one item with a factor loading of .05 (PAS6; "How often have you found yourself thinking about academic things that you have to accomplish this semester?"), the model fit was improved, x^2 (5, 321) =14.88, *p* =.01, CFI = .98, TLI =.96, RMSEA =.079.

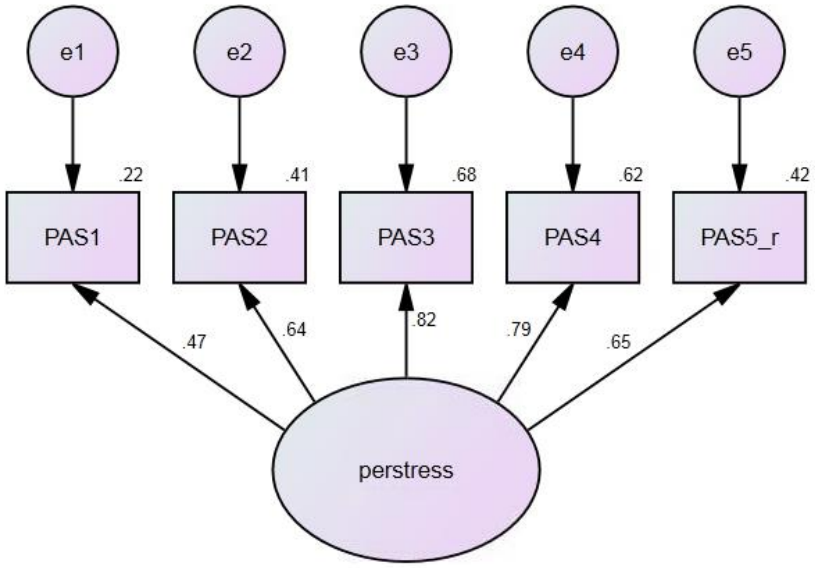

Figure 14. The CFA Model of Perceived Academic Stress.

The second constructed model was the CFA Model of Causal Attributions (Figure 15). All four causal dimensions (locus of causality, stability, external control, personal control) were represented as latent variables in a single CFA model, which also accounted for the correlations among the latent variables. The model indicated acceptable fit to the data, x^2 (48, 321) =149.64, *p* =.000, CFI = .92, TLI =.89, RMSEA =.08.

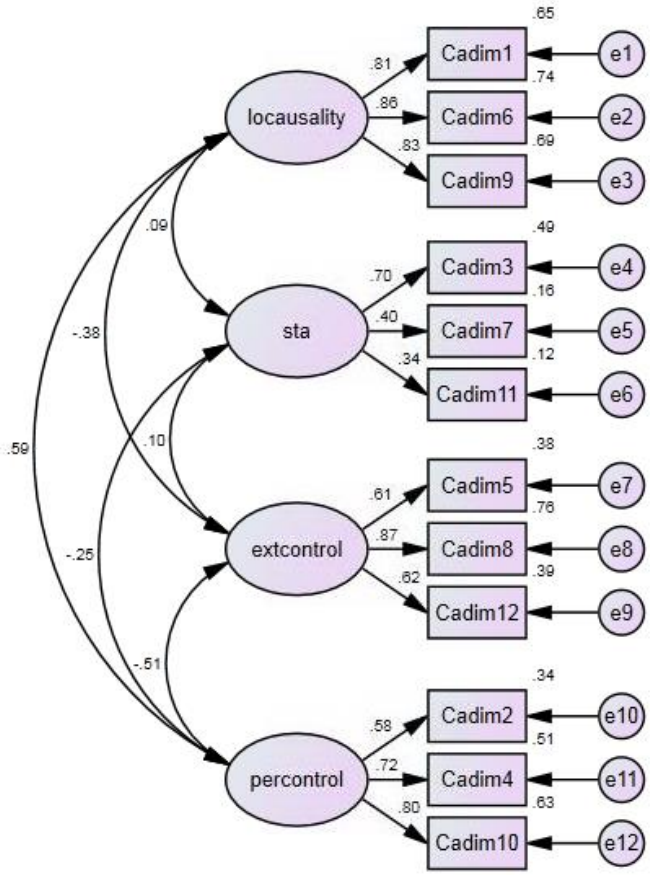

Figure 15. CFA Model of Causal Attributions for Academic Stress.

The third constructed model was the CFA Model of Value (Figure 16). The original model included all four latent variables representing four components of value (intrinsic, attainment, utility, and cost).

The model showed approached an acceptable fit to the data: x^2 (98, 321) =366.58, *p* =.000, CFI = .88, TLI =.85, RMSEA =.09. Because the loading of each item was above .40, removing any additional items from the model would not significantly improve the fit of the model. Therefore, the CFA models for each construct were tested to examine if the fit of the model could be improved. However, although the CFI and TLI were significantly improved in these models (e.g., CFI, TLI > .90), the RMSEA

became worse (e.g., RMSEA >.90). Thus, comparing these models, the CFA models with four components of value indicated better fit although its' value of RMSEA equals .09, but the value of CFA and TLI close to .90.

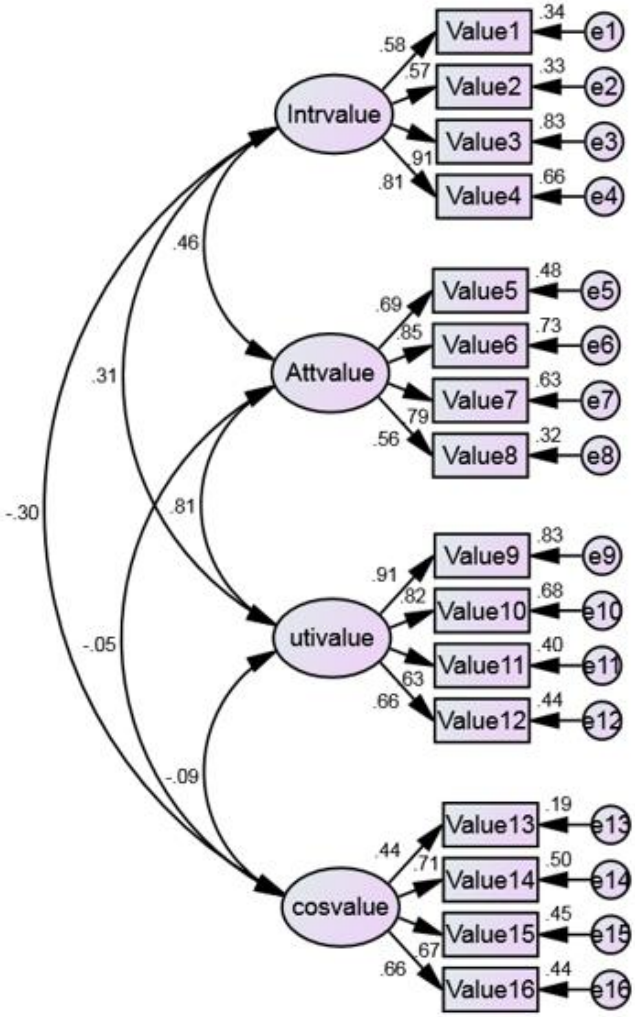

Figure 16. CFA Model of Value of College Education.

The fourth constructed model was the CFA Model of Stress Coping (Figure 17). The model included all four stress coping options as latent variables (academic planning, general active, denial, and academic disengagement) with correlations among the latent

variables. The model indicated acceptable fit to the data: x^2 (98, 321) = 258.36, *p* =.000, CFI = .93, TLI =.90, RMSEA =.07.

In sum, all tested CFA models indicated acceptable levels for all indexes, with the exception of value; however, efforts to improve the fit of this scale yielded no worthwhile changes. Thus, all scales demonstrated construct validity as they measured what they were expected to measure in this study.

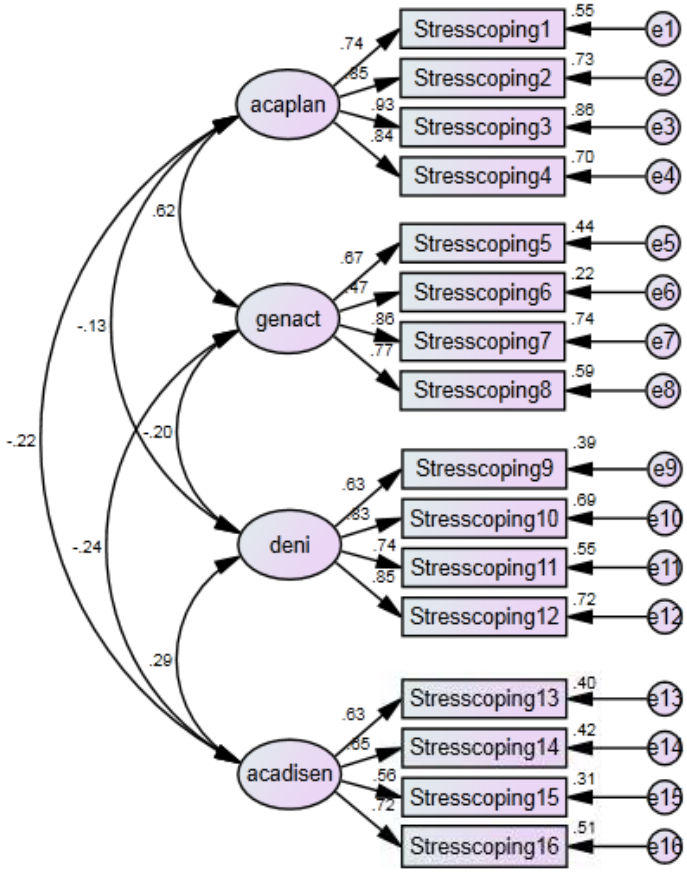

Figure 17. CFA Model of Stress Coping.

Correlations

In order to address research questions 1, 2, and 3, the Pearson correlations were tested. A large number of significant correlations among variables were found (see Table 5).

Regarding PAS and Outcomes of Stress (see Figure 18 and 19)

First, Perceived Academic Stress (PAS) was negatively correlated with perceived academic success, expectation of success, and responsibility for academic performance. Second, PAS was significantly correlated with all tested emotions: PAS was negatively correlated with hope and pride while it was positively correlated with anger, shame, helplessness, guilt, and depression. The findings indicate that if students perceived themselves as more stressed, they experienced more negative than positive emotions.

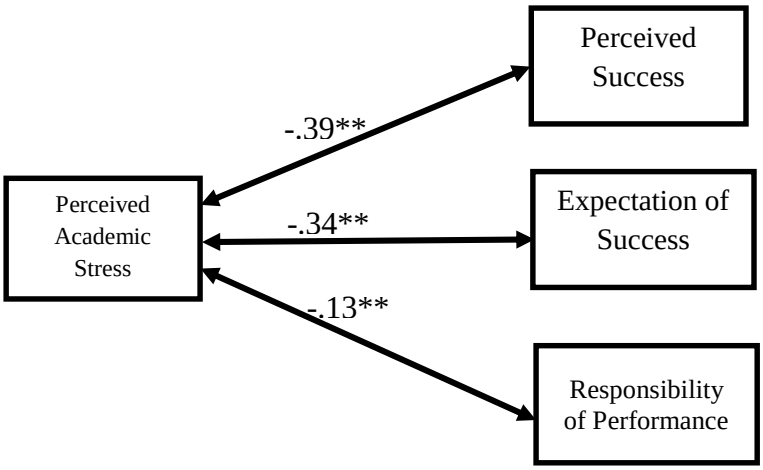

Figure 18. Correlation between Perceived Academic Stress and Outcomes of Stress. Note: ** $p < .01$.

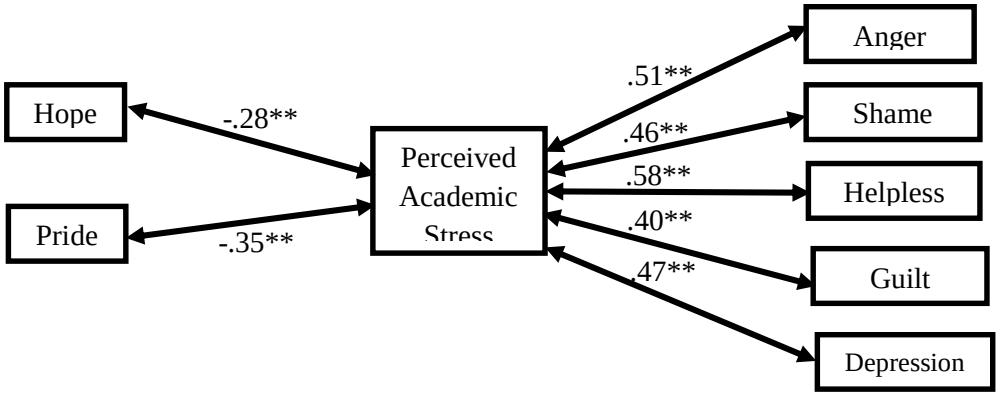

Figure 19. Correlation between Perceived Academic Stress and Emotions.
Note: ** $p < .01$.

Regarding PAS and the Selection of Stress Coping (see Figure 20)

It was found that the more students perceived themselves as stressed, the more likely they were to engage in emotion-focused coping (e.g., academic disengagement) than problem-focused coping (e.g., general active). These findings suggest decreasing freshmen's stress at an early stage, otherwise they may decrease their likelihood to engage in problem-focused coping to adaptively cope with their stress.

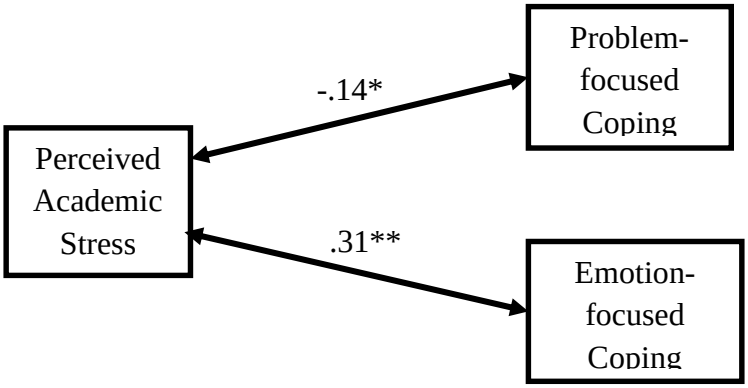

Figure 20. Correlation between Perceived Academic Stress and Coping. Note: *$p < .05$, ** $p < .01$.

Regarding Stress Coping and Outcomes of Stress (see Figure 21)

The correlations revealed that students who engaged in problem-focused coping such as academic planning, perceived themselves as more successful; but, the students

felt less successful if they would have engaged in emotion-focused coping, such as denial or academic disengagement. Also, students had high expectation of success if they engaged in problem-focused coping rather than emotion-focused coping. Third, students who engaged in problem-focused coping were more likely to take responsibility for their academic performance than those who engaged in emotion-focused coping.

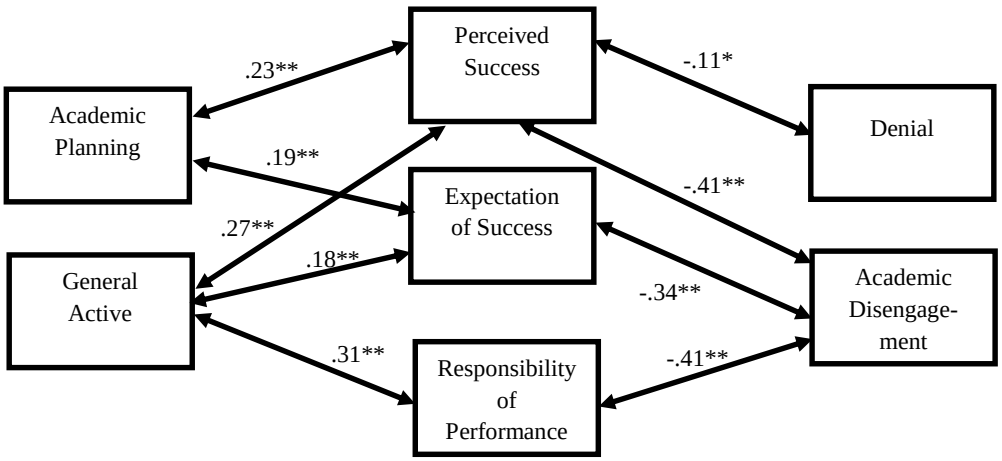

Figure 21. Correlation between Coping and Outcomes of Stress.
Note: *p <.05, ** p < .01.

Finally, each stress coping scale was significantly correlated with several affective responses. First, the academic planning coping was positively correlated with hope and pride, while it was negatively correlated with shame and guilt. Second, the general active coping was positively correlated with hope and pride, while it was negatively correlated with anger, shame, helplessness, guilt, and depression. Third, the denial coping was positively correlated with shame and helplessness. Finally, academic disengagement coping was negatively correlated with hope and pride, while it was positively correlated with anger, shame, helplessness, guilt, and depression. The findings indicate that students who engaged in problem-focused coping experienced more positive

motions such as hope and pride than negative emotions such as anger, shame, helplessness, guilt, and depression.

Table 5. Correlations among Variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. PAS	--																			
2. Locus of causality	.03	--																		
3. Stability	0.18*	-.05	--																	
4. External control	.04	-.30**	.12*	--																
5. Personal control	-.19**	.47**	-.25**	-.37**	--															
6. Intrinsic value	-.22**	-.02	-.05	-.13*	.18**	--														
7. Attainment value	.18*	-.00	.10	-.05	-.02	.36**	--													
8. Utility value	.15**	-.05	.07	-.08	.07	.21**	.65**	--												
9. Cost value	.24**	-.00	.12*	.11	-.23**	-.26**	-.01	-.02	--											
10. Academic planning coping	-.04	.02	-.04	.01	.02	.13*	.02	.00	-.08	--										
11. General active coping	-.14*	-.01	-.00	.09	.04	.14**	.05	.01	-.17**	.57**	--									
12. Denial coping	.06	.03	-.00	.02	-.09	-.05	.07	-.05	.20**	-.13	-.17**	--								
13. Academic disengagement coping	.31*	-.01	.10	.09	-.22**	-.21**	-.11	-.09	.29**	-.19**	-.18	.21**	--							
14. Hope	-.28**	-.07	.05	-.02	.11	.37**	.15**	.07	-.25**	.23**	.30**	-.03	-.22**	--						
15. Pride	-.35**	-.07	.03	-.01	.08	.20**	.01	.02	-.20**	.16**	.23**	-.02	-.30**	.60**	--					
16. Anger	-.51**	-.03	.05	.08	.21**	-.09	.07	.01	.15**	-.10	-.12*	.10	.21**	-.15**	-.16**	--				
17. Shame	.46**	.15**	.04	-.03	-.03	-.07	.11	-.01	.17**	-.15*	-.21**	.18**	.32**	-.27**	-.35**	.54**	--			
18. Helpless	.58**	.02	.10	.01	.23**	-.18**	.05	.04	.27**	-.10	-.23**	.14*	.39**	-.30**	-.44**	.52**	.56**	--		
19. Guilt	.40**	.09	-.03	.00	-.01	-.05	.01	-.02	.20**	-.11*	-.13*	.11	.38**	-.26**	-.36**	.37**	.63**	.45**	--	
20. Depression	.47**	.02	.05	.05	-.14*	-.15**	.03	.00	.24**	-.10	-.15**	.10	.32**	-.26**	-.34**	.45**	.40**	.48**	.43	--

Note. * $p < .05$, ** $p < .01$, two-tailed

Mediation and Moderation Models

Mediation and moderation models were tested in order to address research questions 4 and 5. First, based upon the tested Model 1 and 2, three causal dimensions (locus of causality, external control, and personal control) were respectively placed into the models as mediators and moderators. Second, based upon the tested Models 3 and 4, four components of value (intrinsic, attainment, utility, and cost) were respectively placed into the models as mediators and moderators. A number of mediation and moderation mechanisms were found among tested variables. Specifically, it was found that 3 out of 4 components of subjective task value (intrinsic, attainment, cost) mediated the relationship between PAS and the selection of stress coping. In addition, 2 out of 4 components of subjective task value moderated the relationship between PAS and the selection of stress coping. However, only 1 out of 3 causal dimensions, specifically personal control, mediated the relationship between PAS and the selection of stress coping. No causal dimensions moderated the relationship between PAS and the selection of stress coping

Causal dimensions as mediators or moderators. Personal control partially mediated the relationship between PAS and emotion-focused coping (e.g. academic disengagement coping; see Figure 22). This indicates that both PAS and personal control significantly predicted the academic disengagement coping, but after controlling for the effect of personal control, the predictive effect of PAS on the academic disengagement coping was decreased (Table 6). However, no causal dimensions were found to moderate the predictive effect of PAS on stress coping.

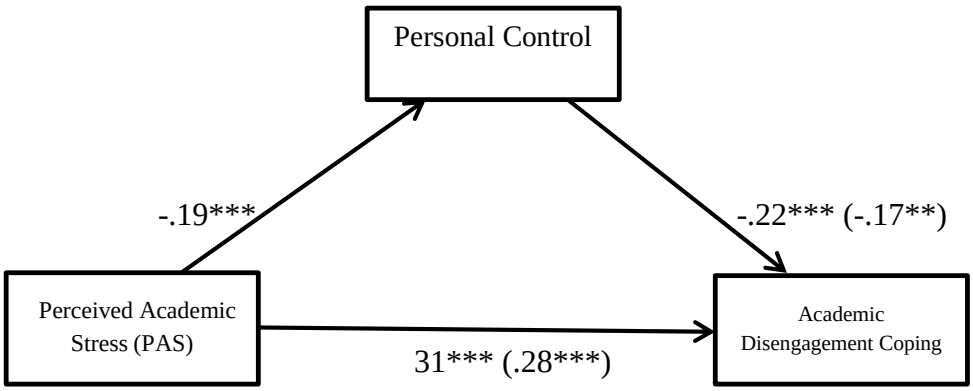

Figure 22. Personal Control Partially Mediates the Relationship between PAS and Academic Disengagement Coping. Note: ** $p < .01$, ***$p < .001$.

Subjective task value as mediators or moderators. A large number of mediational effects of subjective task value on the relationship between PAS and stress coping were found. When considering full mediation, it was found that the cost value fully mediated the predictive effects of PAS on PFC (e.g., general active coping; see Figure 23). Results indicate that both PAS and cost significantly predicted the general active coping, but the predictive effect of PAS on the coping would not be significant after controlling for the effect of cost value.

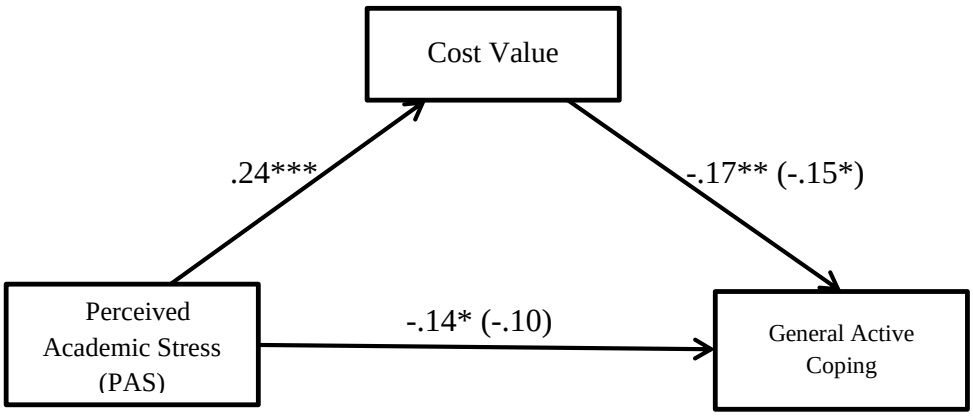

Figure 23. Cost Value Fully Mediate the Relationship between PAS and General Active Coping. Note: *p <.05, ** $p < .01$, ***$p < .001$.

Table 6. Attributions, Task Value Mediate Perceived Academic Stress and Stress coping.

	Step 1: Stress on Coping	Step 2: Stress on Attributions/ Value	Step 3: Stress and Attribution/Value on Coping	95% Bootstrap CI [a] Stress	Stress → Coping: Predictive effect [b]	Final Model R^2
Perceived Academic Stress – Personal Control- Academic Disengagement Coping	.31***	-.19***	.28***, -.17***	.01, .15	partial	.12
Perceived Academic Stress – Intrinsic Value- Academic Planning Coping	- .04	-.22***	-.01, .13*	-.21, -.01	Indirect	.02
Perceived Academic Stress – Intrinsic Value-General Active Coping	-.14**	-.22***	-.11*, .12*	-.17, -.00	partial	.03
Perceived Academic Stress – Intrinsic Value- Academic Disengagement Coping	.31***	-.22***	.27***, -.15**	.01, .16	partial	.12
Perceived Academic Stress – Attainment Value- Academic Disengagement Coping	.31***	.18***	.34***, -.16**	-.13, -.01	partial	.12
Perceived Academic Stress – Cost Value- General Active Coping	-.14*	.24***	-.10, .15**	-.20, -.02	full	.04
Perceived Academic Stress – Cost Value- Denial Coping	.06	.24***	.02, .19***	.06, .26	indirect	.04
Perceived Academic Stress – Cost Value- Academic Disengagement Coping	.31***	.24***	.25***, .23***	.05, .23	partial	.14

[a] Mediational effect present if range between lower and upper bound of confidence interval does not include zero. [b] Direct = perceived academic stress predicts coping with no mediation by attribution or value, partial = perceived academic stress predicts coping partially mediated by attribution or value, full = perceived academic stress predicts coping fully mediated by attribution or value, and indirect = perceived academic stress predicts coping mediated by attributions or value with no initial direct effect. *Note*. Standardized Beta (β) regression coefficients presented with exception of unstandardized coefficients in confidence intervals.

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed).

When considering partial mediation, four relationships were identified. First, intrinsic value partially mediated the relationship between PAS and PFC (e.g., general active coping; see Figure 24). Second, intrinsic value partially mediated the relationship between PAS and EFC (e.g., academic disengaged coping; see Figure 25). Third, attainment value partially mediated the predictive effect of PAS on EFC (e.g., academic disengagement coping; see Figure 26). Fourth, cost value partially mediated the predictive effects of PAS on EFC (e.g., academic disengagement coping; see Figure 27). The findings revealed that both PAS and value (intrinsic, attainment, and cost) significantly predicted the selection of coping, but the predictive effect of PAS on coping was changed after controlling for the effect of value.

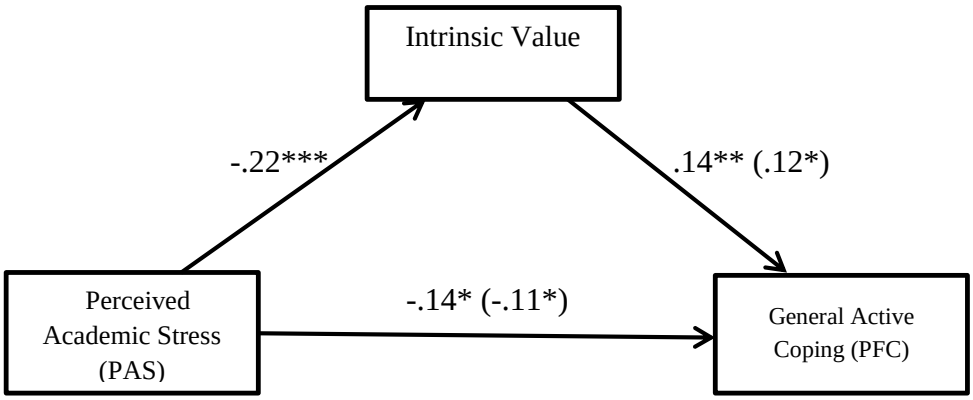

Figure 24. Intrinsic Value Partially Mediate the Relationship between PAS and General Active Coping. Note: *p <.05, ** p < .01, ***p < .001.

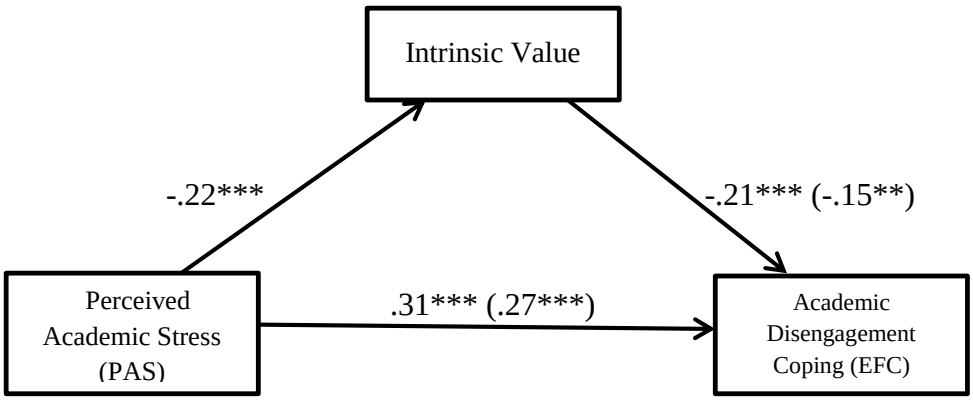

Figure 25. Intrinsic Value Partially Mediate the Relationship between PAS and Academic Disengagement Coping. Note: ** $p < .01$, ***$p < .001$.

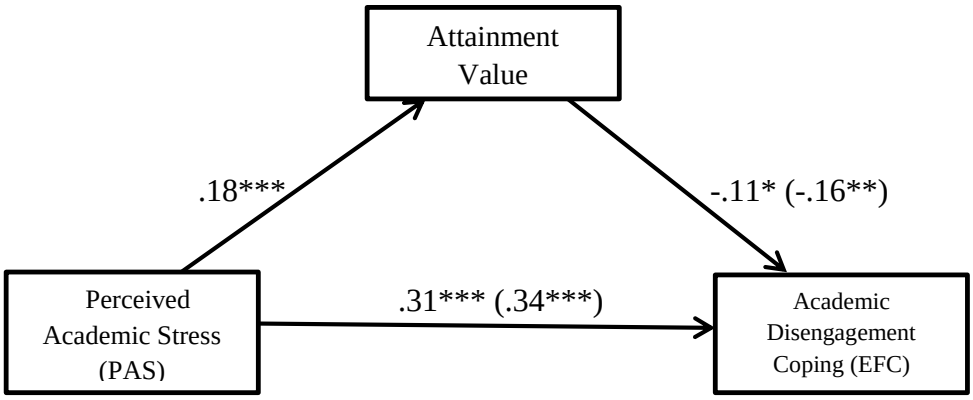

Figure 26. Attainment Value Partially Mediate the Relationship between PAS and Academic Disengagement Coping. Note: ** $p < .01$, ***$p < .001$.

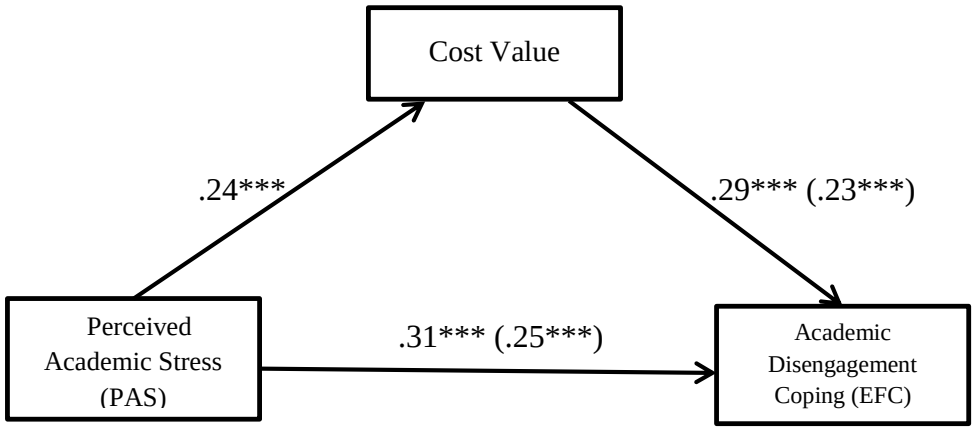

Figure 27. Cost Value Partially Mediate the Relationship between PAS and Academic Disengagement Coping. Note: ***$p < .001$.

When considering indirect effects it was found that PAS indirectly predicted PFC (e.g., academic planning coping) through intrinsic value (see Figure 28), and PAS indirectly predicted EFC (e.g., denial coping) through cost value (see Figure 29). The findings indicate that PAS did not directly, significantly predicted the selection of coping (academic planning, or denial), but the PAS predicted the value (intrinsic, cost value), that in turn predicted the selection of coping.

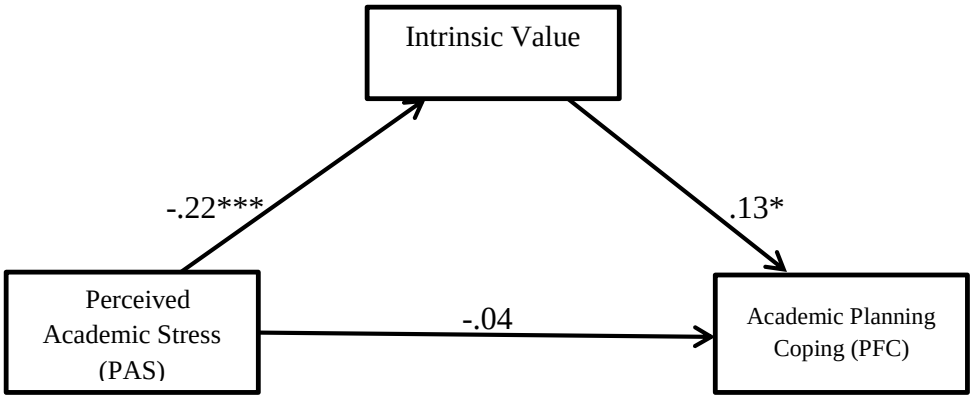

Figure 28. PAS Indirectly Predict Academic Planning Coping through Intrinsic Value. Note: *p <.05, ***p < .001.

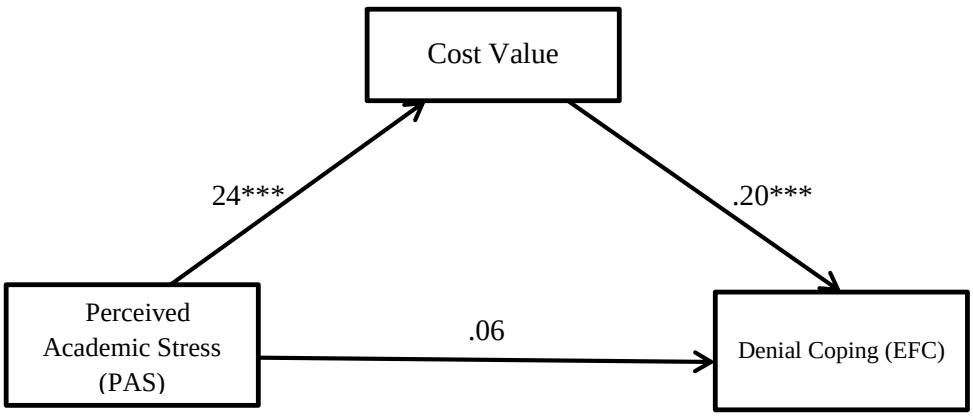

Figure 29. PAS Indirectly Predict Denial Coping through Cost Value. Note: ***p < .001.

The next set of analyses was the moderation analyses for value. First, attainment value was found to moderate the predictive effects of perceived academic stress (PAS) on emotion-focused coping (EFC). In step 1, first order effects representing PAS level and attainment value were entered. A significant positive effect of PAS level revealed that students with higher stress level were more likely to engage in the EFC. In addition, a significant negative effect of attainment value revealed that students with higher attainment value were less likely to engage in the EFC. In step 2, a two-way PAS level by attainment value interaction was included in the regression which was created with centered variables to reduce multicollinearity (Cohen, Cohen, West, & Aiken, 2003). The first-order effect of PAS level remained significant, and the two-way multiplicative PAS by attainment value interaction was also significant. To explore the nature of the interaction, simple slopes were plotted by entering unstandardized PAS level and attainment value representing high (one standard deviation above the mean) and low (one standard deviation below the mean) scores. The low attainment value line ($B = 1.01$, $SE = 0.16$, $p < .001$) was found to be significantly more sloped than the high attainment value line ($B = 0.48$, $SE = 0.16$, $p < .001$); in other words, a positive relationship between perceived academic stress and emotion-focused coping was significantly stronger for students with low attainment value (see Figure 30).

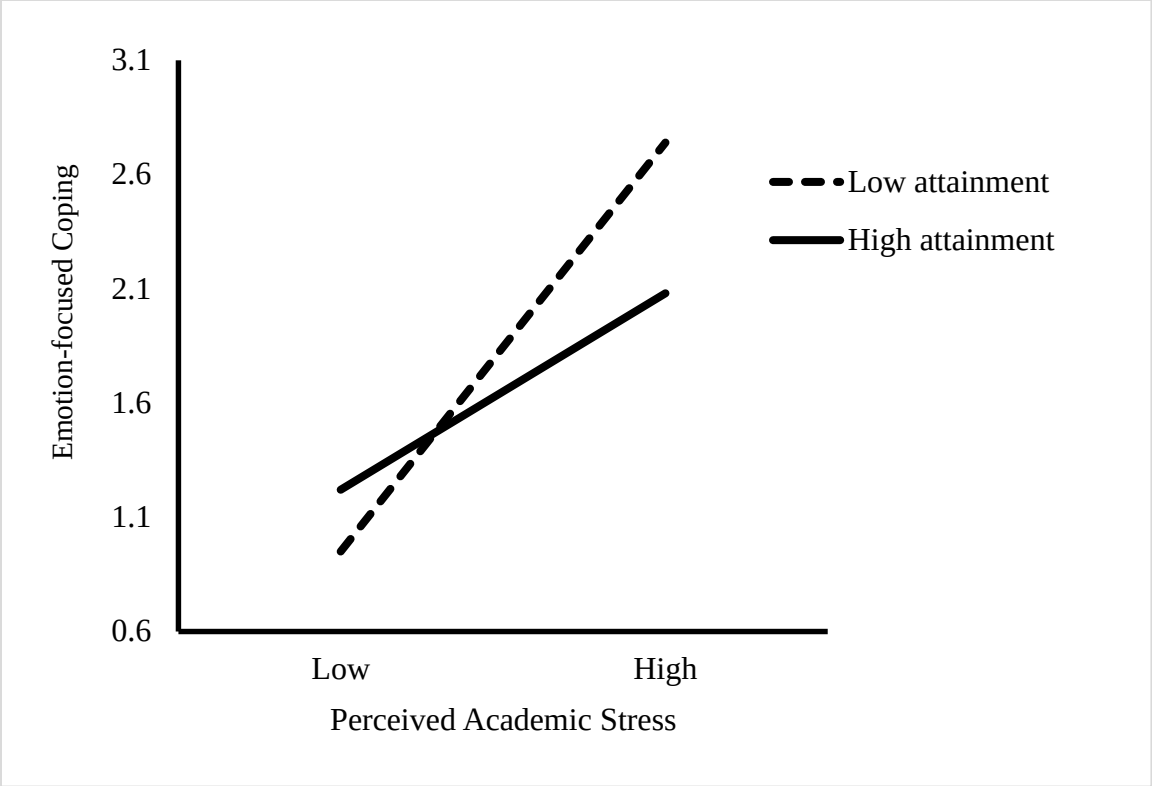

Figure 30. Attainment Value Moderate the Predictive Effects of PAS on Emotion-focused Coping.

The next analysis determined if the cost value moderated the predictive effects of PAS on problem-focused coping (e.g., general active coping). In Step 1, first order effects representing the PAS level and cost value were entered. A significant negative effect of PAS level revealed that students with higher stress levels were less likely to engage in PFC. In addition, a significant negative effect of cost value revealed that students with higher cost value were less likely to engage in PFC. In step 2, a two-way PAS levels by cost value interaction was included in the regression which was created with centered variables to reduce multicollinearity (Cohen et al., 2003). The first-order effect of PAS levels remained significant and the two-way multiplicative PAS by cost

value interaction was also significant. To explore the nature of the interaction, simple slopes were plotted by entering the unstandardized PAS levels and cost value representing high (one standard deviation above the mean) and low (one standard deviation below the mean) scores. The low cost value line (B = -1.38, SE =.57, p < .05) was found to be significantly more sloped than the high cost value line (B = -.79, SE =.30, p < .05) indicating the negative relationship between perceived academic stress and problem-focused coping was significantly stronger for students with low cost value (see Figure. 31)

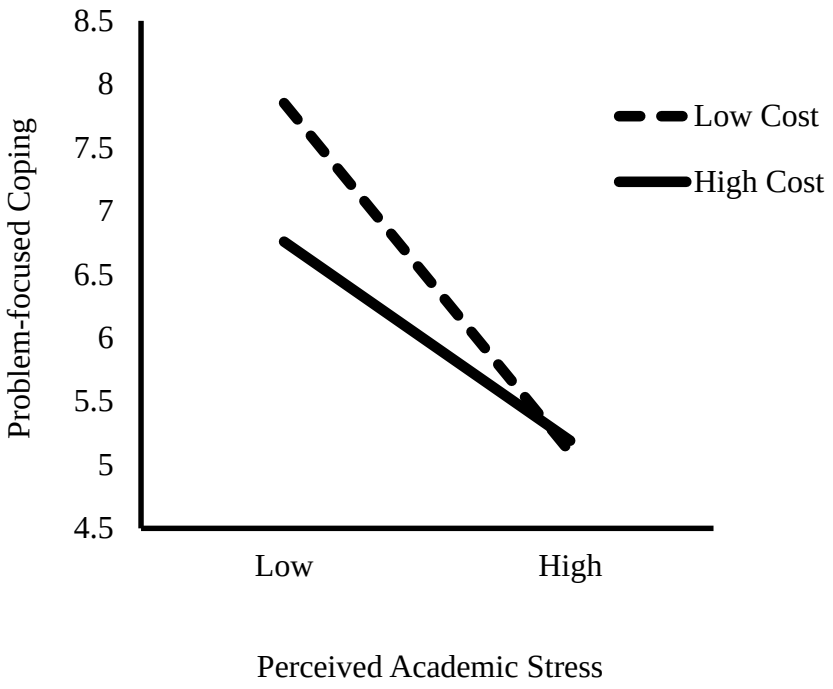

Figure 31. Cost Value Moderate the Predictive Effects of PAS on Problem-focused Coping.

Conclusion

The findings of the study addressed each of the five research questions. First, it was found that the stress level was negatively correlated with freshmen perception of academic success, expectation of success, responsibility for academic performance, and positive emotion experience. Second, the findings revealed that the problem-focused coping was correlated with the positive outcomes such as high levels of perceived academic success, high expectation of success, high levels of responsibility for academic performance, and positive emotional experience. Thus, the above mentioned findings suggested the importance of decreasing freshmen stress at early stage through employing the problem-focused coping. Third, the findings of this study provided evidence in supporting that one causal dimension (i.e., personal control), and three components of subjective task value (i.e., intrinsic, attainment, and cost) can be recognized as specific cognitive appraisals that mediate or moderate the relationship between perceived academic stress and the selection of stress coping.

The study concludes in Chapter V. It includes a discussion of each research question, limitations and future directions, as well as the conclusion and significance of the study.

CHAPTER V

DISCUSSION

The purpose of the current study was to examine motivation indicators, such as causal attributions for stress and value of college education, as cognitive appraisals that may mediate or moderate the relationship between perceived academics stress (PAS) and the selection of stress coping. In addition, the correlations among stress, stress coping, and outcomes of stress was also examined. The results of the study indicated the theoretical framework, research design, and quantitative methods provided valid and reliable data to address the research questions. In this chapter, all research questions were discussed with an explanation of how the findings address each research question. In addition, conclusion, implications for intervention/prevention of freshmen's success, limitations and future directions were also discussed.

Research Question 1

"Is freshmen perceived academic stress correlated with their perceived academic success, expectation of success, responsibility for academic performance, and emotions?"

The findings revealed that students who perceived themselves as more stressed felt less successful, had lower expectations of success, took less responsibility for their academic performance, and experienced more negative (e.g., anger, shame, helplessness, guilt, and depression) than positive emotions (e.g., hope and pride). The findings are consistent with previous studies which found stress is negatively associated with college

students' low academic achievement (e.g., Struther et al., 2000) and high depression (e.g., Jones & Johnston, 1997).

Research Question 2

"When freshmen perceive themselves as stressed, what type of stress coping do they typically engage in?"

It was found that freshmen who perceived themselves as more stressed were more likely to engage in emotion-focused coping (e.g., academic disengagement coping), and less likely to engage in problem-focused coping (e.g., general active coping). One possible explanation is that the stress that increases the sense of hopelessness in freshmen decreases their motivation to truly change their stressful situation, thus resorting them to more emotion focused coping. The findings are consistent with the previous studies (Arthur, 1998; Folkman & Lazarus, 1985; Struthers et al., 2000) in that college students engaged in PFC, and/or EFC to cope with their stress.

Research Question 3

"Is given stress coping correlated with certain outcomes of stress, such as perceived academic success, expectation of success, responsibility for academic performance, and emotions?"

Results indicated that students who engaged in problem-focused coping perceived themselves as more successful, had higher expectations of success, took more responsibility for their academic performance, and experienced more positive emotions than negative emotions. The findings are consistent with previous studies in that problem-focused coping is associated with positive outcomes (DeBerard et al., 2004;

Endler et al., 1994; Kim & Duda, 2003; Struthers et al., 2000). This result supports the importance of examining factors that likely affect the selection of the problem-focused coping by freshmen to adaptively cope with their academic stress.

Research Question 4

"Do casual attributions for academic stress mediate or moderate the relationship between perceived academic stress and the selection of stress coping?"

In this study, personal control partially mediated the relationship between PAS and emotion-focused coping. The finding indicates that students decrease their academic efforts if they attribute their academic stress to personally uncontrollable causes. One explanation for this effect is that if freshmen perceive their stress is out of their control, they become hopeless, and decrease their motivation towards putting forth effort to change their stressful situation. This finding is consistent with previous studies which found that if individuals perceived they were unable to change their stress, they just distanced themselves from the stressors (Anshel & Kaissidis, 1997; Folkman & Lazarus, 1980; Kim & Duda, 2003). These findings demonstrate that causal attributions, specifically those high in personal control, can be recognized as a specific cognitive appraisal that plays a significant role in the relationship between perceived academic stress and the selection of stress coping. This finding provides evidence to support the explanation for the reason why some stressed freshmen engage in problem-focused coping to truly change their stressful situation while others engage in emotion-focused coping to simply distance themselves from their stressors.

However, only personal control mediated the relationship between PAS and the selection of stress coping, which is inconsistent with the findings of the pilot study where locus of causality partially mediated the predictive effect of PAS on emotion-focused coping, as well as personal control and external control directly predicted the emotion-focused coping.

One concern is that it is possible that participants in the current study were not familiar with how to rate a causal ascription on a bipolar measure scale. For example, one item of the CDS II is "That reflects an aspect of the situation 1 2 3 4 5 6 7 8 9 that reflects an aspects of yourself". When students rated their causes for stress, they likely took it for granted to think about the higher scores representing high levels of the situational aspects, which is similar to the majority of Likert type scale. When the surveys were administrated, the researcher tried not to thoroughly explain the measure scale in order to avoid from disturbing participants' mind, which was a problem occurred in a previous study (Dong et al., 2013). Thus, one dilemma is that if no explanation of the bipolar scale was provided, students would not clearly understand it whereas if a detailed explanation was provided, the students could understand the scale, but their responses would be affected by the explanation of the researcher. One recommendation for solving this dilemma is revising the bipolar scale as a unipolar scale where the higher scores represent high levels of internality. An example of this revision is: "That reflects an aspects of yourself 1 2 3 4 5 6 7 8 9". Since the unipolar scale is similar to the format of Likert type scale which is often used in college surveys, the reliability and construct validity of the scale will likely be significantly improved.

Research Question 5

"Does subjective value of a college education mediate or moderate the relationship between perceived academic stress and the selection of stress coping?"

The findings of the study reveal that the value of a college education can be recognized as a specific cognitive appraisal that mediates or moderates the predictive effects of PAS on the selection of stress coping. When considering intrinsic value as a mediator, results indicated that freshmen who perceived themselves as less stressed were more likely to engage in problem-focused coping if they also placed high intrinsic value on a college education. Alternatively, freshmen who perceived themselves as more stressed were more likely to engage in emotion-focused coping if they did not value their college education as enjoyable.

When considering attainment value as a mediator, it was found that freshmen who perceived themselves as more stressed were more likely to engage in emotion-focused coping if they less valued their college education as important. Results indicate that when considering the cost value as a mediator, freshmen who perceived themselves as less stressed were more likely to engage in problem-focused coping if they placed low cost value on a college education. In addition, freshmen who perceived themselves as more stressed were more likely to engage in emotion-focused coping if they rated the cost value of a college education as high. In conclusion, intrinsic, attainment, and cost value mediate or moderate the relationship between PAS and the selection of stress coping.

However, utility value did not predict the selection of any stress coping, which is conflict with the previous studies where utility value significantly predicted college

students' behavior choice (Feather, 1988; Battle & Wigfield, 2003) and efforts (Cole et al., 2008). One possible explanation is that freshmen commonly attend the required, core courses during their freshmen year; as a result, they do not typically enroll in courses relating to a chosen majors or have not yet decided upon a major. Thus, freshmen may not yet understand how a college education will be useful or helpful to their future plans.

Moreover, it was found that value moderated the predictive effects of PAS on the selection of stress coping. First, attainment value moderated the predictive effect of PAS on the selection of emotion-focused coping. Specifically, students who had high levels of stress and placed low attainment value on their college education were more likely to engage in emotion-focused coping than those who had high levels of stress, but placed high attainment value on their college education. Thus, students with high levels of stress and low levels of attainment value of college education are at the highest risk for selecting emotion-focused coping to cope with their academic stress.

Second, cost value moderated the predictive effect of PAS on the selection of problem-focused coping. The finding indicates that students who had low levels of stress, and rated the cost value of their college education as low were more likely to engage in problem-focused coping to adaptively cope with their academic stress. The finding highlights two important aspects. On the one hand, it is important to decrease freshmen levels of stress while on the other hand, it is important to improve the value of a college education as perceived by freshmen. Although there is cost value associated with pursing a college degree such as taking time to pay back college loans after graduation, a college degree is helpful or useful for their future plans, such as finding a good job.

Therefore, the findings pertaining to research questions 4 and 5 strongly support Lazarus and Folkman's (1984) proposition that cognitive appraisals play a role in the relationship between perceived stress and the selection of stress coping, as well as the accurate terms of cognitive appraisals, such as causal attributions for academic stress and value of college education, are more informative than the terms of primary and secondary appraisals. In addition, the findings of the study have implications in regard to interventions to reduce stress for freshmen, such as improving their motivation for effectively coping with their stress through moderating their causal explanations for stress, and improving their value of a college education.

Limitations and Future Directions

Although the current study had a variety of strengths, several weaknesses should be mentioned. First, all participants were recruited from one university in one geographic area, thus the generalization of findings from the study will be restrained to certain area. A convenient sample could have possibly biased the findings of the study. Specifically, since the participants' academic stress level, causal attributions for stress, and value of a college education were not screened before recruiting them, they would be likely to have a relatively high or low level of response scores for these measurement scales. Participants of this study actually self-reported being moderately stressed, many of them had functional causal explanations for their academic stress, such as internal and personally controllable causes, as well as they valued their college education as enjoyable, important, useful, and/or rated its cost value as low. This reduction in variability of scores distribution may have limited the detection of statistically significant

findings. Future research should consider recruiting more diverse samples of participants whose perceived level of stress would likely provide more variation to examine the predictive effect of causal attributions for stress and the value of a college education on the selection of stress coping. Last, because of the poor reliability of stability (α = .46), the data relating to this scale were not used in data analysis, which prevented the study from testing the role of all of the causal dimensions in the relationship between PAS and the selection of stress coping, and retrained significant findings of the study. In the future, researchers should consider improving the reliability of the scale in order to obtain more inclusive findings.

Although the current study found that achievement motivation indicators can predict the selection of stress coping, only two indicators, causal attributions and subjective task value, were examined as cognitive appraisals. It is recommended that in future studies, researchers consider investigating the role of other achievement motivation indicators, such as goals or self-efficacy, in predicting the selection of stress coping. It is hoped that as more specific cognitive appraisals that are recognized, more strategies of intervention and prevention to help freshmen adaptively cope with their academic stress and complete their college education will be identified.

Conclusion and Significance

This is the first study that creatively applied achievement motivation theories such as Attribution Theory (Weiner, 1985) and Expectancy-value Theory (Eccles et al., 1983) to examine the selection of stress coping (Lazarus & Folkman, 1984) as well as the outcomes of stress (perceived academic success, expectation of success, responsibility for

academic performance, and emotions) among first-year college students. Although a large number of empirical studies have supported both causal attributions and subjective task value predict college students' academic motivation and achievement, these two motivation indicators have never been recognized as cognitive appraisals that determine the motivation of freshmen for adaptively coping with their stress. The findings of this study reveal how the two indicators predict the selection of stress coping. Results indicate that if freshmen attributed their stress to personally controllable causes, and/or if they valued their college education as enjoyable or important, or rated its cost value as low, they were more likely to engage in the problems-focused coping in order to authentically change their stressful situation. Otherwise, they would engage in emotion-focused coping which results in temporary emotional release, but does not reduce their stress in the long-term.

Moreover, the findings have practical implication for first-year college students adaptively coping with their academic stress. Although it is unrealistic to eliminate stressful situations for freshmen, the good news is that the motivation of freshmen for coping with their stress can be improved through moderating their causal explanations for stress, and improving their value of a college education. For instance, class instructors and facilitators of motivational psychosocial interventions such as attribution retraining (Haynes, Perry, Stupnisky, & Daniels, 2009) should induce freshmen to employ personally controllable attributions to explain their academic stress. It is recommended that university administrators take steps to improve the value of a college education for freshmen. All efforts should be made to help freshmen look at their academic stress in an

optimistic way, and then they will be motivated to engage in problem-focused coping to truly moderate their stressful situation. In addition, universities should consider organizing field experiences that can show freshmen how their college education is important and helpful/useful to their future careers. Freshmen need help to recognize that while pursuing a bachelor degree, they may need to make compromises in regard to some preferred activities, and/or they will need to take time to pay their college loans after graduation. Universities need to help freshmen understand that these compromises are worth it if their college education is helpful or useful for their future plan.

Finally, the findings of the study are meaningful for the success of freshmen in college education in a variety of aspects. First, decreasing stress is meaningful. It was found that freshmen who perceived themselves as more stressed felt less success in college, had low expectations of success, took less responsibility for their academic performance, and experienced more negative emotions than positive emotions which negatively affect their academic achievement and persistence.

Second, the intervention and prevention programs for early stress management for freshmen is necessary. The study found that the more students perceived themselves as stressed, the less likely they were to engage in problem-focused coping to cope with their academic stress.

Finally, recognizing the riskers of academic stress is meaningful for the success of freshmen. The findings indicated that students were at high risk of academic stress if they attributed their academic stress to personally uncontrollable causes, and/or valued their college education as less enjoyable. In addition, it was found that students who

placed high attainment, utility value on their college education perceived themselves as more stressed. A possible explanation is that if students valued their college education as important, and useful or helpful to their future plans, they likely put much more efforts on their college study, and then experienced more stress than their counterparts.

APPENDICES

Appendix A
Code Book

TABLE OF CONTENTS

Measures	# Items
Perceived academic stress	6
Cause of academic stress	1
Causal dimensions:	12
1. Locus of Causality	3
2. Stability	3
3. External Control	3
4. Personal Control	3
Stress coping	16
1. Problem-focused coping:	8
Academic planning	4
General active	4
2. Emotion-focused coping	8
Denial	4
Academic disengagement	4
Perceived success	1
Responsibility	1
Expectation of success	1
Emotions:	7
1. Hope	1
2. Pride	1
3. Anger	1
4. Shame	1
5. Helpless	1
6. Guilt	1
7. Depression	1
Subjective task value:	16
1. Intrinsic value	4
2. Attainment value	4
3. Utility value	4
4. Cost value	4
Total	61

Demographics and Background

Names	Items
gender	Gender:
age	Age:
major	Major:
yearsincollege	**Year (s) in college?** (Circle one number) (1) First year; (2) Second year; (3) Third year; (4) Fourth year; (5) Fifth year or more
ethnicity	**Ethnicity** (Circle all that apply): (1) White/Caucasian (2) African American/Black (3) American Indian (4) Asian American/Asian (5) Mexican American/Chicano (6) Puerto Rican American (7) Other Latino (8) Other
Finaid	**Are you currently receiving financial aid?** (1) Yes; (2) No (Circle one choice)

Perceived Academic Stress

Please rate each question in the space provided.

1	2	3	4	5

Names	Items
PAS1	How often have you been upset to your study this semester because of something happened unexpectedly?
PAS2	How often have you felt “nervous” and “stressed” to your study this semester?
PAS3	How often have you found that you could not cope with all the things you had to do in your study this semester?
PAS4	How often have you felt difficulties were piling up so high that you could not overcome them this semester?
PAS5_r	How often have you felt confident about your ability to handle your academic problems this semester?
PAS6	How often have you found yourself thinking about academic things that you have to accomplish this semester?

Causal Attributions and Dimensions

Name	Item
cause	Please name the most significant cause for your academic stress in this semester.

For the cause you have written above, please rate it by circling one number in each item.

Names	Items
Cadim1	That reflects an aspect of the situation 1 2 3 4 5 6 7 8 9 that reflects an aspect of yourself
Cadim2	Not manageable by you 1 2 3 4 5 6 7 8 9 manageable by you
Cadim3	Temporary 1 2 3 4 5 6 7 8 9 permanent
Cadim4	You cannot regulate 1 2 3 4 5 6 7 8 9 you can regulate
Cadim5	Over which others have no control 1 2 3 4 5 6 7 8 9 over which others have control
Cadim6	Outside of you 1 2 3 4 5 6 7 8 9 inside of you
Cadim7	Variable over time 1 2 3 4 5 6 7 8 9 stable over time
Cadim8	Not under the power of other people 1 2 3 4 5 6 7 8 9 under the power of other people
Cadim9	Something about others 1 2 3 4 5 6 7 8 9 something about you
Cadim10	Over which you have no power 1 2 3 4 5 6 7 8 9 over which you have power
Cadim11	Changeable 1 2 3 4 5 6 7 8 9 unchangeable
Cadim12	Other people cannot regulate 1 2 3 4 5 6 7 8 9 other people can regulate

Items 1, 6, 9 = Locus of causality
Items 3, 7, 11 = Stability
Items 5, 8, 12 = External control
Items 2, 4, 10 = Personal control

Stress Coping

Please rate each item on a 1-10 scale in the space provided.

1	2	3	4	5	6	7	8	9	10

Problem-focused coping	
1. Academic planning coping	
Names	**Items**
Stresscoping1	I think about how I might best handle my stress
Stresscoping2	I make a plan of action to cope with the stress
Stresscoping3	I try to come up with a strategy about what to do to the stress
Stresscoping4	I think hard about what steps to take to cope with the stress
2. General active coping	
Names	**Items**
Stresscoping5	I do what has to be done to the stress
Stresscoping6	I think about the reason(s) why the stress occurred
Stresscoping7	I concentrate my efforts on doing something about the stress
Stresscoping8	I take action to try to get rid of the stress
Emotion-focused coping	
3. Denial coping	
Names	**Items**
Stresscoping9	I act as though the stress hasn't happened
Stresscoping10	I refuse to believe that the stress happened
Stresscoping11	I say to myself this isn't real
Stresscoping12	I pretend that the stress hasn't really happened
4. Academic disengagement coping	
Names	**Items**
Stresscoping13	I skip class
Stresscoping14	I reduce the amount of effort I put in to solving the problem
Stresscoping15	I drop out of the class I am doing poorly in
Stresscoping16	I give up trying to reach my goal

Perceived Academic Success (please circle one number)

1	2	3	4	5	6	7	8	9	10

Name	Item
Perceivedsuccess	How successful do you feel you are in college this semester?

Responsibility and Expectations (please circle one number)

1	2	3	4	5	6	7	8	9	10

Names	Items
Responsibility	I feel responsible for my academic performance in college this semester.
Expectationofsuccess	I expect to do well in college this semester.

Emotions (please circle one number)
Please rate the extent to which you have experienced the following EMOTIONS regarding your college study in this semester.

1	2	3	4	5	6	7	8	9	10

Names	Items
emo1	Hope
emo2	Pride
emo3	Anger
emo4	Shame
emo5	Helpless
emo6	Guilt
emo7	Depression

Subjective task value

Please circle one number to rate each item: 1= *Strongly Disagree*, 2 = *Disagree*, 3 = *Slightly Disagree*, 4 = *Slightly Agree*, 5 = *Agree*, and 6 = *Strongly Agree*

1. Intrinsic value	
Names	**Items**
Value1	I find the idea of being a university student very appealing.
Value2	It is exciting to think about the challenge of university-level schoolwork.
Value3	I look forward to advancing my knowledge by exploring new ideas in university.
Value4	I look forward to taking university classes from professors who are experts in their fields.
2. Attainment value	
Names	**Items**
Value5	I feel that attending university is a necessary part of what will make me feel good about myself in the future.
Value6	I feel that I need a university degree to fulfill my potential.
Value7	I value the prestige that comes with a university degree.
Value8	I feel that I need a university degree to prove myself.
3. Utility value	
Names	**Items**
Value9	A university education is important to me because it will provide better job opportunities.
Value10	I think a university degree will be very useful for what I want to do in the future.
Value11	I want to go to university so that I can make more money.
Value12	I want to get a university degree so that I can support myself and my children if necessary.
4. Cost value	
Names	**Items**
Value13	A university education would not be worth it if I had to work hard after I got out to re-pay a long term tuition loan.
Value14	Getting a university degree sounds like it really requires more effort than I'm willing to put into it.
Value15	I'm concerned that I won't be able to handle the stress that goes along with university.
Value16	I worry that pursuing a university degree will take time away from other activities I want to pursue while I'm still young.

Appendix B
IRB Approvals

UNIVERSITY OF UND NORTH DAKOTA

INSTITUTIONAL REVIEW BOARD
c/o RESEARCH DEVELOPMENT AND COMPLIANCE
DIVISION OF RESEARCH
TWAMLEY HALL ROOM 106
264 CENTENNIAL DRIVE STOP 7134
GRAND FORKS ND 58202-7134
(701) 777-4279
FAX (701) 777-6708

September 9, 2013

Ying Dong
418 Burdick Court
Grand Forks, ND 58203

Dear Ms. Dong:

We are pleased to inform you that your project titled, "Examining the Motivation, Academic Stress, and Coping of College Students" (IRB-201309-066) has been reviewed and approved by the University of North Dakota Institutional Review Board (IRB). The expiration date of this approval is September 1, 2015.

As principal investigator for a study involving human participants, you assume certain responsibilities to the University of North Dakota and the UND IRB. Specifically, any adverse events or departures from the protocol that occur must be reported to the IRB immediately. It is your obligation to inform the IRB in writing if you would like to change aspects of your approved project, prior to implementing such changes.

When your research, including data analysis, is completed, you must submit a Research Project Termination form to the IRB office so your file can be closed. A Termination Form has been enclosed and is also available on the IRB website.

If you have any questions or concerns, please feel free to call me at (701) 777-4279 or e-mail michelle.bowles@research.und.edu.

Sincerely,

Michelle L. Bowles, M.P.A., CIP
IRB Coordinator

MLB/jle

Enclosures

REPORT OF ACTION: EXEMPT/EXPEDITED REVIEW

University of North Dakota Institutional Review Board

Date: 9/3/2013 **Project Number:** IRB-201309-066

Principal Investigator: Dong, Ying

Department: Teaching and Learning

Project Title: Examining the Motivation, Academic Stress, and Coping of College Students

The above referenced project was reviewed by a designated member for the University's Institutional Review Board on 9/6/2013 and the following action was taken:

☐ Project approved. **Expedited Review** Category No. _____
Next scheduled review must be before: _____

☐ **Copies of the attached consent form with the IRB approval stamp dated _____ must be used in obtaining consent for this study.**

☒ Project approved. **Exempt Review** Category No. 2
This approval is valid until SEP 1 2015 as long as approved procedures are followed. No periodic review scheduled unless so stated in the Remarks Section.

☐ **Copies of the attached consent form with the IRB approval stamp dated Information Sheet must be used in obtaining consent for this study.**

☐ Minor modifications required. The required corrections/additions must be submitted to RDC for review and approval. **This study may NOT be started UNTIL final IRB approval has been received.**

☐ Project approval **deferred. This study may not be started until final IRB approval has been received.**
(See Remarks Section for further information.)

☐ Disapproved claim of exemption. This project requires Expedited or Full Board review. The Human Subjects Review Form must be filled out and submitted to the IRB for review.

☐ Proposed project is not human subjects research as defined under Federal regulations 45 CFR 46 or 21 CFR 50 and does not require IRB review.

☐ Not Research ☐ Not Human Subject

PLEASE NOTE: Requested revisions for student proposals MUST include adviser's signature. All revisions MUST be highlighted and submitted to the IRB within 90 days of the above review date.

☒ Education Requirements Completed. (Project cannot be started until IRB education requirements are met.)

cc: Robert Stupnisky, Ph.D.

Signature of Designated IRB Member 9/6/2013
UND's Institutional Review Board Date

If the proposed project (clinical medical) is to be part of a research activity funded by a Federal Agency, a special assurance statement or a completed 310 Form may be required. Contact RDC to obtain the required documents.

(Revised 10/2006)

INFORMATION SHEET

TITLE:	Examining the motivation, academic stress, and coping of college students
PROJECT DIRECTOR:	Ying Dong
PHONE #	1-304-685-5137
DEPARTMENT:	Teaching and Learning

This study is being conducted as part of dissertation research at the University of North Dakota. The purpose of this research is to gather and analyze data in order to examine how motivation indicators, such as causal attributions for academic stress, subjective value of higher education mediate or moderate the relationship between perceived academic stress and stress coping.

Approximately 300 college students will be participants. The data collection will be in the form of the attached survey and will take place in the courses of Chemistry 115, Physics 110, and Biology 150. Your participation in the study will last 10-15 minutes. The confidentiality of your survey responses will be well protected. At no time will the researcher have access to any information that would identify you or that would link your name to your survey responses.

There are no foreseeable risks to participating in this research. However, if you have any questions or feel you would like to discuss this study more in depth with the researcher, feel free to contact her at the number provided.

You may not benefit personally from being in this study. However, we hope that, in the future, other people might benefit from this study. The knowledge gained may help college students' stress management in order to succeed in their college education.

You will not have any costs for being in the study, nor will you be paid. The University of North Dakota and the research team are receiving no payments from other agencies, organizations, or companies to conduct this research study.

The study record may be reviewed by Government agencies and the University of North Dakota Institutional Review Board (IRB). The records of this study will be kept private to the extent permitted by law. Confidentiality will be maintained by means of storing surveys and any voluntary personal information in a locked storage cabinet and computers accessible only by the researcher's personal identification code.

If a report or article is written about this study, the study results will be described in a summarized manner so that you cannot be identified unless you so desire to be; you have the opportunity to discuss the topic of the study in depth with the researcher, if you so choose.

Approval Date: SEP 6 2013
Expiration Date: SEP 1 2015
University of North Dakota IRB

Your participation is voluntary. You are free to skip any questions which you would prefer not to answer. You may choose not to participate or you may discontinue your participation at any time without penalty or loss of benefits to which you are otherwise entitled. Your decision whether or not to participate will not affect your current or future relations with the University of North Dakota.

The researcher conducting this study is Ying Dong. You may ask any questions you have now. If you later have questions, concerns, or complaints about the research please contact Ms. Dong at (304) 685-5137 at any time. Questions may also be directed to Ms. Dong's research supervisor Dr. Robert Stupnisky (Robert.Stupnisky@email.und.edu).

If you have questions regarding your rights as a research subject, or if you have any concerns or complaints about the research, you may contact the University of North Dakota Institutional Review Board at (701) 777-4279. Please call this number if you cannot reach research staff, or you wish to talk with someone else.

The completion of the survey constitutes your consent.

Thank you for participating!

Approval Date: SEP 6 2013
Expiration Date: SEP 1 2015
University of North Dakota IRB

Appendix C
IRB Approvals for Protocol Change

REPORT OF ACTION: PROTOCOL CHANGE
University of North Dakota Institutional Review Board

Date: 9/17/2013 **Project Number:** IRB-201309-066

Principal Investigator: Dong, Ying

Department: Teaching and Learning

Project Title: Examining the Motivation, Academic Stress, and Coping of College Students

The above referenced project was reviewed by a Designated Member for the University's Institutional Review Board on 9/19/2013 and the following action was taken:

☐ Protocol Change approved. **Expedited Review** Category No. _____
Next scheduled review must be before: _____

☐ **Copies of the attached consent form with the IRB approval stamp dated _____ must be used in obtaining consent for this study.**

☒ Protocol Change approved. **Exempt Review** Category No. 2
This approval is valid until SEP 1 2015 as long as approved procedures are followed.
No periodic review scheduled unless so stated in the Remarks Section.

☒ **Copies of the attached consent form with the IRB approval stamp dated** Information Sheet **must be used in obtaining consent for this study.**

☐ Minor modifications required. The required corrections/additions must be submitted to RDC for review and approval. **This study may NOT be started UNTIL final IRB approval has been received.**
(See Remarks Section for further information.)

☐ Protocol Change approval **deferred. This study may not be started until final IRB approval has been received.**
(See Remarks Section for further information.)

☐ Protocol Change **disapproved. This study may not be started until final IRB approval has been received.**

REMARKS: **Any unanticipated problem or adverse occurrence in the course of the research project must be reported within 5 days to the IRB Chairperson or RDC by submitting an Unanticipated Problem/Adverse Event Form.**

Any changes to the Protocol or Consent Forms must receive IRB approval prior to being implemented (except where necessary to eliminate apparent immediate hazards to the subjects or others).

PLEASE NOTE: **Requested revisions for student proposals MUST include adviser's signature. All revisions MUST be highlighted and submitted to the IRB within 90 days of the above review date.**

☒ Education Requirements Completed. (Project cannot be started until IRB education requirements are met.)

cc: Robert Stupnisky, Ph.D.

Signature of Designated IRB Member
UND's Institutional Review Board

9/19/2013
Date

If the proposed project (clinical medical) is to be part of a research activity funded by a Federal Agency, a special assurance statement or a completed 310 Form may be required. Contact RDC to obtain the required documents.

(Revised 10/2006)

INFORMATION SHEET

TITLE:	Examining the motivation, academic stress, and coping of college students
PROJECT DIRECTOR:	Ying Dong
PHONE #	1-304-685-5137
DEPARTMENT:	Teaching and Learning

This study is being conducted as part of dissertation research at the University of North Dakota. The purpose of this research is to gather and analyze data in order to examine how motivation indicators, such as causal attributions for academic stress, subjective value of higher education mediate or moderate the relationship between perceived academic stress and stress coping.

Approximately 300 college students will be participants. The data collection will be in the form of the attached survey and will take place in the courses of Biology 150, Chemistry 115, Math 146, and Physics 110. Your participation in the study will last 10-15 minutes. The confidentiality of your survey responses will be well protected. At no time will the researcher have access to any information that would identify you or that would link your name to your survey responses.

There are no foreseeable risks to participating in this research. However, if you have any questions or feel you would like to discuss this study more in depth with the researcher, feel free to contact her at the number provided.

You may not benefit personally from being in this study. However, we hope that, in the future, other people might benefit from this study. The knowledge gained may help college students' stress management in order to succeed in their college education.

You will not have any costs for being in the study, nor will you be paid. The University of North Dakota and the research team are receiving no payments from other agencies, organizations, or companies to conduct this research study.

The study record may be reviewed by Government agencies and the University of North Dakota Institutional Review Board (IRB). The records of this study will be kept private to the extent permitted by law. Confidentiality will be maintained by means of storing surveys and any voluntary personal information in a locked storage cabinet and computers accessible only by the researcher's personal identification code.

If a report or article is written about this study, the study results will be described in a summarized manner so that you cannot be identified unless you so desire to be; you have the opportunity to discuss the topic of the study in depth with the researcher, if you so choose.

Approval Date: SEP 19 2013
Expiration Date: SEP 1 2015
University of North Dakota IRB

Your participation is voluntary. You are free to skip any questions which you would prefer not to answer. You may choose not to participate or you may discontinue your participation at any time without penalty or loss of benefits to which you are otherwise entitled. Your decision whether or not to participate will not affect your current or future relations with the University of North Dakota.

The researcher conducting this study is Ying Dong. You may ask any questions you have now. If you later have questions, concerns, or complaints about the research please contact Ms. Dong at (304) 685-5137 at any time. Questions may also be directed to Ms. Dong's research supervisor Dr. Robert Stupnisky (Robert.Stupnisky@email.und.edu).

If you have questions regarding your rights as a research subject, or if you have any concerns or complaints about the research, you may contact the University of North Dakota Institutional Review Board at (701) 777-4279. Please call this number if you cannot reach research staff, or you wish to talk with someone else.

The completion of the survey constitutes your consent.

Thank you for participating!

Approval Date: SEP 19 2013
Expiration Date: SEP 1 2015
University of North Dakota IRB

Appendix D

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REFERENCES

Abouserie, R. (1994). Sources and levels of stress in relation to locus of control and self-esteem in university students. *Educational Psychology, 14* (3), 323-330.

Akgun, S., & Ciarrochi, J. (2003). Learned resourcefulness moderates the relationship between academic stress and academic performance. *Educational Psychology, 23*(3), 287-294.

Allen, S., & Hiebert, B. (1991). Stress and coping in adolescents. *Canadian Journal of Counseling*, 25, 19-32.

Anshel, M. H., & Kaissidis, A. N. (1997). Coping style and situational appraisals as predictors of coping strategies following stressful events in sport as a function of gender and skill level. *British Journal of Psychology, 88*(2), 263-276.

Archer, J., & Lamnin, A. (1985). An investigation of personal and academic stressors in college campuses. *Journal of College Student Personnel, 26*(3), 210-215.

Arthur, N. (1998). The effects of stress, depression, and anxiety on postsecondary students' coping strategies. *Journal of College Student Development, 39*(1), 11-22.

Aspinwall, L. G., & Taylor, S. E. (1992). Modeling cognitive adaptation: a longitudinal investigation of the impact of individual differences and coping on college adjustment and performance. *Journal of Personality and Social Psychology, 63*, 989-1003.

Awino, J. O., & Agolla, J. E. (2008). A quest for sustainable quality assurance measurement for universities: case of study of the University of Botswana, *Education Research Review, 3*(6), 213-218.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182.

Battle, A., & Wigfield, A. (2003). College women's value orientations toward family, career, and graduate school. *Journal of Vocational Behavior, 62,* 56-75.

Bean, J. P. (1990). Why students leave: Insights from research. In D. Hossler & J. P. Bean (Eds.), *The strategic management of college enrollments* (pp. 147–169). San Francisco, CA: Jossey-Bass.

Bentler, P. M. (1990). Comparative fit indexes in structural equation models. *Psychological Bulletin, 107,* 238-246.

Bernstein, W. M., Stephan, W. G., & Davis, M. H. (1979). Explaining attributions for achievement: A path analytic approach. *Journal of Personality and Social Psychology, 37,* 1810-1821.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of testing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 445-455). Newbury Park, CA: Sage.

Byrne, B. M. (2010). *Structural equation modeling with AMOS: Concepts, applications, and programming* (2nd ed.). New York, NY: Routledge.

Card, D., & Krueger, A. B. (1992). Does school quality matter? Returns to education and the characteristics of public schools in the United States. *Journal of Political Economy*, *100(1)*, 1-40.

Carnevale, A. P., & Desrochers, D. M. (2004). Why learning? The value of higher education to society and the individual. In K. Boswell & C. D. Wilson (Eds.), *Keeping America's promise: A report on the future of the community college* (pp.39-44). Denver, CO: Education Commission of the States.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: a theoretically based approach. *Journal of Personality and Social Psychology*, *56*, 267-283.

Carver, C. S., & Scheier, M. F. (1994). Situational coping and coping dispositions in a stressful transaction. *Journal of Personality and Social Psychology*, *66*, 184-195.

Cohen, S. (2014). *Perceived stress scale: Measuring the self-perception of stress*. Retrieved from http://www.mindgarden.com/products/pss.htm

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/ correlation analysis for the behavioral sciences*. Mahwah, NJ: Lawrence Erlbaum.

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, *24*, 385-396.

Cole, J. S., Bergin, D. A., & Whittaker, T. A. (2008). Predicting student achievement for low stakes tests with effort and task value. *Contemporary Educational Psychology*, *33*(4), 609-624.

Cortes-Suarez, G. (2008). Causal attributions for success or failure by passing and failing students in college algebra. *Community College Journal of Research and Practice, 32,* 325-346.

Cronbach, L. J. (1957). The two disciplines of scientific psychology. *American Psychologist, 12,* 671-684.

DeBerard, M. S., Spielmans, G. L., & Julka, D. C. (2004). Predictors of academic achievement and retention among college freshmen: A longitudinal study. *College Student Journal, 38*(1), 66-80.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York, NY: Plenum.

Dillman, D. A., Tortora, R. D., & Bowker, D. (1998, August). *Principles for constructing web surveys*. Presented in Joint Meetings of the American Statistical Association, Dallas, Texas.

Doane, D. P., & Seward, L. E. (2011). Measuring skewness: a forgotten statistic. *Journal of Statistics Education, 19*(2), 1-18.

Dong, Y., Stupnisky, R. H., & Berry, J. C. (2013). Multiple causal attributions: An investigation of college students learning a foreign language. *European Journal of Psychology of Education*, 1-16.

D'Zurilla, T. J., & Sheedy, C. F. (1991). Relation between social problem-solving ability and subsequent level of psychological stress in college students. *Journal of Personality and Social Psychology, 61*(5), 841-846.

Eccles, J. S., Adler, T.F., Futterman, R., Goff, S.B., Kaczala, C.M., Meece, J.L., & Midgley, C. (1983). Expectancies, values, and academic behaviors. In J. T. Spence (Ed.), *Achievement and achievement motives* (pp. 75-146). San Francisco, CA: W.H. Freeman.

Elkins, S. A., Braxton, J. M., & James, G. W. (2000). Tinto's separation stage and its influence on first-semester college student persistence. *Research in Higher Education*, *41*(2), 251-268.

Endler, N. S., Kantor, L., & Parker, J. D. A. (1994). State-trait coping, state-trait anxiety, and academic performance. *Personality and Individual Differences*, *16*, 663-670.

Erkutlu, H. V., & Chafra, J. (2006). Relationship between leadership power bases and job stress of subordinates: example from boutique hotels. *Management Research News*, *29*(5), 285-297.

Feather, N. T. (1988). Values, valences, and course enrollment: Testing the role of personal values within an expectancy-valence framework. *Journal of Educational Psychology*, *80*, 381-391.

Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior, 21*, 219-239.

Folkman, S., & Lazarus, R. S. (1985). If it changes it must be a process: study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology*, *48*(1), 150-170.

Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter: cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology*, *50*(5), 992-1003.

Gall, J. P., Gall, M. D., & Borg, W. R. (2005). *Applying educational research: A practical guide* (5th ed.). Boston, MA: Pearson.

Gay, L. R., Mills. G. E., & Airasian, P. (2006). *Educational research: Competencies for analysis and application* (8th ed.). Upper Saddle River, NJ: Pearson Education.

George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference* (4th ed.). Boston, MA: Allyn & Bacon.

Gobel, P., & Mori, S. (2007). Success and failure in the EFL classroom: exploring students' attributional beliefs in language learning. *EUROSLA Yearbook, 7*, 149-169.

Horn, L. J. (1996). *Nontraditional undergraduates: Trends in enrollment from 1986 to 1992 and persistence in attainment among 1989–90 beginning postsecondary students* (NCES 97578). US Department of Education, NCES. Washington, DC: U.S. Government Printing Office.

Havlicek, L. L., & Peterson, N. L. (1976). Robustness of the Pearson correlation against violation of assumption. *Perceptual and Motor Skills*, *43*, 1319-1334.

Haynes, T. L., Perry, R. P., Stupnisky, R. H., & Daniels, L. M. (2009). A review of attributional retraining in higher education: Fostering engagement and persistence in vulnerable college students. In J. Smart (Ed.), *Higher education: Handbook of*

theory and research (Vol. 24, pp. 227-272). The Netherlands: Springer Publishers.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. NY, New York: Guilford Press.

Heine, S. J., Kitayama, S., & Lehman, D. R. (2001). Cultural differences in self-evaluation: Japanese readily accept negative self-relevant information. *Journal of Cross-cultural Psychology*, *32*, 434-443.

Hsieh, P., & Schallert, D. L. (2008). Implications from self-efficacy and attribution theories for an understanding of undergraduates' motivation in a foreign language course. *Contemporary Educational Psychology*, *33*, 513-532.

Hulleman, C. S., Durik, A. M., Schweigert, S. B., & Harackiewicz, J. M. (2008). Task values, achievement goals, and interest: An integrative analysis. *Journal of Educational Psychology*, *100*(2), 398-416.

Institute for Higher Education Policy. (2005). *The investment payoff: A 50 state analysis of the public and private benefits of higher education.* Washington, DC: Institute for Higher Education Policy. Retrieved from http://www.ihep.org/assets/files/publications/g-l/InvestmentPayoff.pdf

Jaeger, D. A., & Page, M. E. (1996). Degrees matter: New evidence on sheepskin effects in the returns to education. *Review of Economics and Statistics*, *78(4)*, 733–740.

Jones, M. C., & Johnston, D. W. (1997). Distress, stress and coping in first-year student nurses. *Journal of Advanced Nursing*, *26*(3), 475-482.

Kim, M. S., & Duda, J. L. (2003). The coping process: Cognitive appraisals of stress, coping strategies, and coping effectiveness. *Sport Psychologist, 17*(4), 406-425.

Kirby, D., & Sharpe, D. (2001). Student attrition from Newfoundland and Labrador's public college. *Alberta Journal of Educational Research, 47*(4), 353-368.

Kitayama, S., Markus, H. D., Matsumoto, H., & Norasakkunkit, V. (1997). Individual and collective process in the construction of the self: Self-enhancement in the United States and self-criticism in Japan. *Journal of Personality and Social Psychology, 72*, 1245-1267.

Kohn, J. P., & Frazer, G. H. (1986). An academic stress scale: Identification and rated importance of academic stressors. *Psychological Reports, 59*(2), 415-426.

Kornitzer, M., Dramaix, M., & DeBacker, G. (1999). Epidemiology of risk factors for hypertension. *Drugs, 57*(5), 695-712.

Kovenkloughu, G., & Greenhaus, J. H. (1978). Causal attributions, expectations, and task performance. *Journal of Applied Psychology, 63*, 698-705.

Krathwohl, D. R. (1998). *Methods of educational & social science research: An integrated approach* (2nd ed.). New York, NY: Longman.

Largo-Wight, E., Peterson, P. M., & Chen, W. W. (2005). Perceived problems solving, stress, and health among college students. *American Journal of Health Behavior, 29*(4), 360-370.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York, NY: Springer Publishing.

Leech, N. L., Barrett, K. C., & Morgan, G. A. (2005). *SPSS for intermediate statistics: Use and interpretation* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Mattlin, J. A., Wethington, E., & Kessler, R. C. (1990). Situational determinants of coping and coping effectiveness. *Journal of Health and Social Behavior*, *31*(1), 103-122.

McAuley, E., Duncan, T., & Russell, D. (1992). Measuring causal attributions: The revised Causal Dimension Scale (CDSII). *Personality and Social Psychology Bulletin, 18*, 566-573.

McGrath, M., & Braunstein, A. (1997). The prediction of freshmen attrition: An examination of the importance of certain demographic, academic, financial, and social factors. *College Student Journal*, *31*(3), 396-408.

Meece, J. L., Wigfield, A., & Eccles, J. S. (1990). Predictors of math anxiety and its influence on young adolescents' course enrollment intentions and performance in mathematics. *Journal of Educational Psychology*, *82*, 60-70.

Mertler. C. A. & Vannatta, R. A. (2005). *Advanced and multivariate statistical methods: Practical application and interpretation* (3rd ed). Glendale, CA: Pyrczak Publishing.

Misra, R., McKean, M., West, S., & Russo, T. (2000). Academic stress of college students: Comparison of student and faculty perceptions. *College Student Journal*. *34* (2), 236-245.

Moritsugu, J., and Stanley, S. (1983). Minority status as a stressor. In Felner, R. D. (eds.), *Preventive psychology: Theory, research, practice*. New York, NY: Pergamon.

Norman, G. (2010). Likert scales, levels of measurement and the "laws" of statistics. *Advances in health sciences education, 15*(5), 625-632.

Office of Institutional Research of UND. (2013). *Total number of full-time and part-time freshmen*. Retrieved from http://und.edu/research/institutional-research/_files/docs/factbook/2013/s13-freshmen.pdf

Pearson, E. S. (1931). The analysis of variance in the case of non-normal variation. *Biometrika, 23*, 114-133.

Pearson, E. S. (1932a). The test of significance for the correlation coefficient. *Journal of the American Statistical Association, 27*, 128-134.

Pearson, E. S. (1932b). The test of significance for the correlation coefficient: Some further results. *Journal of the American Statistical Association, 27*, 424-426.

Perrine, R. M. (1999). Stress and college persistence as a function of attachment style. *Journal of the Freshman Year Experience and Students in Transition, 11*(1), 25-38.

Perry, R. P., Stupnisky, R. H., Daniels, L. M., & Haynes, T. L. (2008). Attributional (explanatory) thinking about failure in new achievement settings. *European Journal of Psychology of Education, 23*, 459-475.

Preacher, K. J., Curran, P. J., & Bauer, D. J. (2004). *Simple intercepts, simple slopes, and regions of significance in MLR 2-way interactions*. Retrieved on December, 2013 from http://www.quantpsy.org/interact/mlr2.htm

Robbins, S. B., Lauver, K., Le, H., Davis, D., Langley, R., & Carlstrom, A. (2004). Do psychosocial and study skill factors predict college outcomes? A meta-analysis. *Psychological Bulletin, 130*(2), 261-288.

Smedley, B. D. (1993). Minority-status stresses and the college adjustment of ethnic minority freshmen. *Journal of Higher Education, 64*(4), 434-52.

Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion, *Journal of Personality and Social Psychology, 48*, 813-838.

Strauss, L. C., & Volkwein, J. F. (2004). Predictors of student commitment at two-year and four year institutions. *The Journal of Higher Education, 75*(2), 203-227.

Struthers, C., Perry, R. P., & Menec, V. H. (2000). An examination of the relationship among academic stress, coping, motivation, and performance in college. *Research in Higher Education, 41*(5), 581-592.

Terry, D. J. (1994). Determinants of coping: the role of stable and situational factors. *Journal of Personality and Social Psychology, 66*, 895-910.

The National Center for Higher Education Management Systems. (2013). *Retention rate-first time college freshmen returning their second year: Four-year total-2010*. Retrieved from http://www.higheredinfo.org/dbrowser/index.php?measure=92

Trochim, W.M.K. (2006). *Descriptive statistics*. Retrieved from http://www.socialresearchmethods.net/kb/statdesc.php

Tucker, L.R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika, 38* (1), 1-10.

Weiner, B. (1972). Attribution theory, achievement motivation and the educational process. *Review of Educational Research, 42,* 203-215.

Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review, 92,* 548-573.

Weiner, B. (2000). Interpersonal and intrapersonal theories of motivation from an attributional perspective. *Educational Psychology Review, 12,* 1-14.

Weiner, B. (2006). *Social motivation, justice, and the moral emotions: An attributional approach*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Weiner, B. (2010). The development of an attribution-based theory of motivation: A history of ideas. *Educational Psychology, 45* (1), 28-36.

Wigfield, A., & Eccles, J. S. (2000). Expectancy–value theory of achievement motivation. *Contemporary Educational Psychology, 25,* 68-81.

Zhang, Z., & RiCharde, R. S. (1998). *Prediction and analysis of freshmen retention*. Paper presented at the Annual Forum of the Association for Institutional Research, Minneapolis, MN.